

# **MBA: BANKING 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 (Banking Technology)** is a specialized inter-disciplinary programme primarily focused on developing future managers in Banking, Finance and Systems Domain with a strong technology background to meet the growing technological challenges faced by the Banking and Financial sectors.

**This programme is aimed at:**

- Providing the basic knowledge on the working of Financial Markets, Banking Operations, Stock market operations, Commodity market, Capital flows, Arbitrage operations and Derivative instruments, working of foreign currency markets for possible global exposure on the working of Financial Networks.
- Imparting managerial skills and knowledge required to manage modern business enterprises involved in providing Finance and Banking solutions.
- Developing skills in the Technologies used in modern banking sector namely Data warehousing, Data Analytics, Information security, cloud computing, Block Chain, Machine learning, Agile Technology IT Infrastructure Management, Information System Audit, Business Intelligence, etc.

**Major Highlights of the Curriculum**

1. Industry Integrated Curriculum
2. Two Months Banking Internship in Public Sector Banks
3. Soft skill Training by Professionals
4. Banking Technology Training at IDRBT
5. Case Study on Fortune 500 Companies
6. Forex and Stock Trading Training
7. Bloomberg and CMIE Database based courses
8. Facilitated with Digital Library with OPAC system and Wi-Fi Enabled campus

**Duration of the Program:** Two Years-Full Time Programme

**Eligibility for Admission:**

- A. Bachelor's degree in Engineering/Technology (Computer Science & Engineering/ Information Technology) or
- B. Bachelor's degree in Computer Science/ Information Technology or Bachelors of Computer Applications or
- C. Bachelor's Engineering/Technology degree in Chemoelectrical and Electronics Engineering, Electronics and Instrumentation, Instrumentation and Control Engineering Or \*\*\*\*
- D. B.Com. (Computer Applications) or \*\*\*\*
- E. Any other Bachelor's degree with PGDCA (only from recognized universities) with a minimum of 55% marks in all degrees/ diploma\*\*\*\*

\*\*\*\*The candidates having the following degrees:

- i. BE/B.Tech in Instrumentation and control engineering (ICE)
- ii. B.com Computer Applications
- iii. Any other Bachelor's Degree with PGDCAShould have studied the following subjects
  - a. Minimum one Computer Programming Subject
  - b. Minimum one Data base Management Subject
  - c. Minimum one Computer Network Subject
  - d. Minimum one Information System/System Analysis/Software Engineering Subject

**Admission Procedure:**

The Entrance Test for MBA Banking Technology programme will be a Common Admission Test. Candidates need to submit the application for MBA Banking 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 Semester-End 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 Internal Assessment Tests (15+15) : 30 marks
  2. Assignment, Presentation, Attendance etc. : 10 marks
- Total: 40 marks

**Evaluation of End Semester Written Examination:**

The answer scripts of the End Semester Examination shall be evaluated for a weightage of 60 marks and this will be evaluated by one External Examiner and one Internal Examiner (course in-charge) separately. The average of the marks awarded by both Internal and External examiners shall be taken for providing the Grades. The list of External Examiners is to be approved by the Dean, School of Management from a panel of External Examiners to be given by the Course in-charge for each subject and the consolidated panel of examiners shall be forwarded to the Dean by the Head of the of the Department.

**Internship:**

Banking Internship is to be carried out for 2 months in a Bank Branch. Students should attend to different regular activities of a Bank like different deposit accounts, Credit facilities for Agricultural Loans, Educational Loans, working capital Trade credit etc. During this Internship a minimum 45 days attendance is Mandatory. A report is to be prepared on the following topics with copies of forms, documents of that given bank duly certified by the Branch Manager is to be submitted and it will be evaluated by 2 DGM/AGM level Bank officers. A viva will be conducted to evaluate the Knowledge and skills learned by students during 2 months Long Internship.

**Final Project:**

Every student of MBA 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).

**Comprehensive Viva:**

Every Semester ends with a Comprehensive Viva Examination Conducted by two external experts (1 from Academic & 1 from industry) Industry Visits, Banking Internship and Final Projects.

**Infrastructure Facilities**

The Department has a well-equipped computer laboratory with the necessary software and hardware to cater to the learning process of students. The lab is connected to the internet which allows students to enrich knowledge round the clock. However, all the students have to use their own personal laptops for regular classes. The Department subscribes to the Corporate Databases like CMIE Prowess annually for organizing Corporate Finance Lab. Access to on-line International Journals is available through Intranet in the campus.

**MBA: BANKING TECHNOLOGY DEGREE PROGRAMME**  
**REVISED COURSE STRUCTURE**  
**[2020-21 onwards]**

CODE	COURSE	COURSE TYPE	CREDIT
<b>NON-CREDIT BRIDGE COURSE</b>			
MBAB 301	Basics of Business Environment	Hard	Non-Credit
MBAB 302	Basics of Computer Programming	Hard	Non-Credit
MBAB 303	Basics of Economics	Hard	Non-Credit
<b>SEMESTER I</b>			
MBAB 411	Management Concepts & Organizational Behaviour	Hard	3
MBAB 412	Quantitative Techniques for Management	Hard	3
MBAB 413	Accounting and Finance for Bankers	Hard	3
MBAB 414	Banking Principles and Practices	Hard	3
MBAB 415	System Analysis & Design & Agile Software Development	Hard	3
MBAB 416	Data Centre Management and Cloud Computing	Hard	3
MBAB 417	Business Communication and Lab	Hard	3
MBAB 418	Modelling and Design Lab	Hard	2
<b>SEMESTER I CREDITS</b>			<b>23</b>
<b>SEMESTER II</b>			
MBAB 421	Banking Operations and Management	Hard	3
MBAB 422	Entrepreneurship and Start-ups	Hard	3
MBAB 423	Security Analysis and Portfolio Management	Hard	3
MBAB 424	Financial Statement Analysis	Hard	3
MBAB 425	Banking Technology Management	Hard	3
MBAB 426	IT Infrastructure Management for Banks	Hard	3
MBAB 427	Banking Technology Lab	Hard	2
MBAB 428	Corporate Finance Lab	Hard	2
MBAB	Elective 1: Paper – 1	Soft	3
MBAB	Elective 2: Paper – 1	Soft	3
<b>SEMESTER II CREDITS</b>			<b>28</b>
<b>SEMESTER III</b>			
MBAB 511	Financial Management	Hard	3
MBAB 512	Digital Marketing and CRM	Hard	3
MBAB 513	Strategic Management	Hard	3
MBAB 514	Information Security for Banks	Hard	3
MBAB 515	Data Warehousing and Business Intelligence	Hard	3
MBAB 516	Business Intelligence Lab	Hard	2
MBAB 517	Stock and Forex Trading Lab	Hard	2
MBAB 518	Bank Internship	Hard	4
MBAB	Elective I: Paper – 2	Soft	3
MBAB	Elective II: Paper – 2	Soft	3
<b>SEMESTER II CREDITS</b>			<b>29</b>

<b>SEMESTER IV</b>			
MBAB 521	Machine Learning	Hard	3
MBAB 522	International Banking and Financial Services	Hard	3
MBAB	Elective I: Paper – 3	Soft	3
MBAB	Elective I: Paper – 4	Soft	3
MBAB	Elective II: Paper – 3	Soft	3
MBAB	Elective II: Paper – 4	Soft	3
MBAB 524	Final Project & Viva	Hard	6
<b>SEMESTER IV CREDITS</b>			<b>24</b>
<b>TOTAL CREDITS</b>			<b>104</b>
<b>LIST OF SOFTCORE COURSES</b>			
<b>List of Softcore courses for Second Semester</b>			
MBAB 441	Design Patterns	Soft	3
MBAB 442	Smart Banking Technologies	Soft	3
MBAB 443	Software Project Management	Soft	3
MBAB 446	Rural Banking and Micro Finance	Soft	3
MBAB 447	Central Banking & Monetary Policy	Soft	3
MBAB 448	Mutual Fund Management and Services	Soft	3
<b>List of Softcore courses for Third Semester</b>			
MBAB 531	Service Oriented Architecture	Soft	3
MBAB 532	Data Science and Big Data Analytics	Soft	3
MBAB 533	Digital Payment System	Soft	3
MBAB 536	Financial Modelling using Spreadsheet	Soft	3
MBAB 537	Treasury and Fixed Income Securities	Soft	3
MBAB 538	Legal aspects of Business and Banking	Soft	3
<b>List of Softcore courses for Fourth Semester</b>			
MBAB 541	Natural language dialoguing and chatbots	Soft	3
MBAB 542	Block Chain and Cryptography	Soft	3
MBAB 543	Information Systems Control and Audit	Soft	3
MBAB 544	Data Visualization and Reporting	Soft	3
MBAB 546	Cyber Crimes and IT Laws	Soft	3
MBAB 547	Risk Management in Banks	Soft	3
MBAB 548	Financial Derivatives	Soft	3
MBAB 549	Forex and Currency Derivatives	Soft	3

**BRIDGE COURSE – NON-CREDIT**

<b>NON-CREDIT BRIDGE COURSE</b>			
MBAB 301	Basics of Business Environment	Hard	Non-Credit
MBAB 302	Basics of Computer Programming	Hard	Non-Credit
MBAB 303	Basics of Economics	Hard	Non-Credit



**SEMESTER I**  
**MBAB 301: BASICS OF BUSINESS ENVIRONMENT**  
**Hard Core Non-Credit**

**Prerequisites:**

NA

**Learning Objectives**

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

**Learning Outcome:**

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

**Methodology:**

Lecture, Discussion and presentation

- What is Business? Differences between Trade/Commerce/Aids to trade
- Nature of Business: Manufacturing–Services–trading–Banking–Commission-Agency, etc
- Types of Organizations– Sole trader – Partnership – Company form– Cooperatives
- Business Organisations – Company form – Formation – Board of Directors –
- Memorandum of Association– articles of Association
- Company Law–Provisions–Factories Act–Competition Law–Consumer Protection Law
- Business Combinations– Cartels– Mergers & Takeovers
- Taxes–Direct Taxes–Indirect Taxes–Central Sales Act–Octroi–Excise–Customs duties –GST
- Foreign Trade – Exports –Imports– Special Economic Zones– EOUs
- Indian Industrial Policy–IPRs– Public Vs Private Sector– Privatization
- Top Business Houses– Product Concentration– Entry of MNCs
- Business Environments: Internal and External: Legal-Political-Economic-Cultural-Geographical-
- Indian Banking– Public Sector Banks– Private Sector Banks–Foreign Banks– RBI– Credit creation by Banks– RBI Credit Policy

**Basic Text Book and References**

1. Cherunilam, Francis. **International business. PHI Learning Pvt. Ltd., 2020.**
2. Cherunilam, Francis. Business Environment. Text and Cases Himalaya., 2020.
3. Kuchhal S.C. “Industrial Economy of India”, Sultan Chand, Latest
4. Dutt & Sundaram “Indian Economy”, Sultan Chand & Co-Latest
5. Maheswari S.N. “Indian Banking Law & Practice”, Kalyani, Latest

**Open Resources:** <https://finmin.nic.in/>, <http://www.mca.gov.in/> <https://commerce.gov.in/>,  
<https://imf.org/>, <https://www.rbi.org.in/>

**Tools / Software:** - NA

**SEMESTER I**  
**MBAB 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. JDBC in 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, 2nd Edition, O'Reilly Media, 2008**
4. Bruce W. Perry, **Java Servlet &JSP Cookbook, O'Reilly Media, 2004**

**Open Resources:**

**Tools / Software: -**

**SEMESTER I**  
**MBAB 303: BASICS OF ECONOMICS**

**Hard Core Non-Credit**

**Prerequisites:**

NA

**Learning Objectives**

1. Introducing the concepts of Economics

**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:**

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

**Open Resources:** NA

**Tools / Software:** - NA

**SEMESTER I**

<b>SEMESTER I</b>			
MBAB 411	Management Concepts & Organizational Behaviour	Hard	3
MBAB 412	Quantitative Techniques for Management	Hard	3
MBAB 413	Accounting and Finance for Bankers	Hard	3
MBAB 414	Banking Principles and Practices	Hard	3
MBAB 415	System Analysis & Design & Agile Software Development	Hard	3
MBAB 416	Data Centre Management and Cloud Computing	Hard	3
MBAB 417	Business Communication and Lab	Hard	3
MBAB 418	Modelling and Design Lab	Hard	2
<b>SEMESTER I CREDITS</b>			<b>23</b>

**SEMESTER I****MBAB 411: MANAGEMENT CONCEPTS & ORGANIZATIONAL BEHAVIOUR****Hard Core: 3 Credit****Prerequisites:** Basics of Business**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

**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: Management Process:** Nature and Purpose; Functions of Management; Evolution of Management Thought; Management Approaches; Management and Society; External Environment, Social Responsibility and Ethics – Managerial Skills-Qualities of a Good Manager;-Introduction to Strategic Management.**Unit II: Planning:** Nature and Purpose; Objectives - Strategies, Policies and Planning Premises Types of Plans; Steps in Planning; Management by Objectives; Strategic Planning Process; Decision Making Process.**Unit III: Organizing:** Nature of Organizing-Organizational Structure; Organization Levels and Span of Management; Basis of Departmentation; Line and Staff Relationship; Decentralization and Delegation of Authority; Effective Organizing and Organizational Culture. Staffing Systems Approach-Selection, Appraisal and Training-Communication Process; Types of Communication; Barriers to Effective Communication; Motivation Theories: Maslow, Herzberg, McGregor. Approaches and Styles of Leadership.**Unit IV: Direction and Control Process:** Requirements for effective Control; Control-Techniques; Role of Information Technology; Management Information System; Management by Exception; Overall Control and toward the Future through Preventive Control –Controlling and Challenges.**Unit V: Organizational Behavior:** The concept and significance of organizational behavior – Skills and roles in an organization-Classical and modern theories of organizational structure- organizational design-Understanding and Managing individual behavior personality-perception-Values – Attitudes – learning– Motivation.**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:** <https://hbr.org/>**Tools / Software:** - NA

**SEMESTER I**  
**MBAB 412: QUANTITATIVE TECHNIQUES FOR MANAGEMENT**  
**Hard Core: 3 Credit**

**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:** Correlation and Regression –Types of Correlation –Measurement– Scatter Diagram – Karl Pearson's Coefficient of Correlation – Rank Correlation – Utility of Correlation Analysis – Regression Analysis – Estimation of Simple linear regression equation–Testing– Coefficient of Determination– Relationship between Correlation and Regression

**Unit II:** Probability, Sampling and Testing of Hypothesis – Theories of Probability– Probability distribution– Binomial –Normal distribution– Relationship between binomial and normal distributions –Testing of Hypothesis – Steps involved – Level of Significance – Comparison between Sample Mean and Population Mean – Comparison between two sample means –Type I and Type II errors – t test –ANOVA– F test – Introduction to Production Management–Scope – Facility Location: Layout Planning and analysis–Production and Control

**Unit III: Linear Programming and Assignment Problems:** Basics of LP–Fields of application– Minimization and Maximization– Graphic solution– Simplex Method–Degeneracy– Non-feasible solution–Unbound solution–Problem Dual; Assignment formulation–areas of application– Balanced Minimization and unbalanced– Maximization Problems

**Unit IV: PERT & CPM:** Critical Path method– Meaning–Utility–Assumptions–Network Diagram– Computation of critical path– Time Cost trade off– Limitations of CPM;PERT– Calculation of probabilities– Expected Time–variances– PERT area control device–Usefulness of PERT.

**Unit V: Waiting Line theory**–Meaning–Objectives–Applications–M/M/1Queueingmodel–Elements of Waiting Line problem–Fixed arrival and Fixed service time–Random arrival and random service time–Limitations of Waiting line theory- **Game Theory**–Meaning– Types– Value of a Game– Pure Game–Mixed Game–Rule of Dominance–Finding value of Game for various types of Games– Linear programming solution to two person Zero sum game– Short Cut Method– Limitations

**Text Book and Reference Books:**

1. Levin & Rubin., **Statistics for Management, Prentice Hall, 7<sup>th</sup> Edition, 2012**
2. Gupta, S P., **Statistical Method, Sultan Chand, New Delhi, 7<sup>th</sup> Edition**
3. Arora & Arora, **Statistics for Management, S Chand & Co, New Delhi**
4. Kothari C. R., **Quantitative Techniques, Vikas, New Delhi**
5. Tulsian PC & Vishal Pandey., **Quantitative Techniques, Pearson Education, Mumbai,**

**Open Resources:** <https://dbie.rbi.org.in/>, <https://data.oecd.org/>

**Tools / Software:** - MS Excel

**SEMESTER I****MBAB 413: ACCOUNTING AND FINANCE FOR BANKERS****Hard Core: 3 Credit****Prerequisites:** Basic Knowledge in Business**Learning Objectives**

1. To introduce concepts and theories related to Financial Accounting
2. To facilitate the application of the accounting techniques and tools for preparing financial statements.

**Learning Outcome:**

1. To understand and appreciate the concepts of Financial accounting analysis and preparation of financial statements
2. To acquire practical knowledge and understanding over preparation of final accounts and financial statements of a business organization.

**Methodology:**

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

**Unit I: BASIC ACCOUNTING MODEL** Business Organization–Accounting–Accounting Information System– Accounting measurement assumptions –Accounting Environment–Accounting Equations–Commonly used Accounts–Double Entry system– Recording and classifying Transactions– Trial Balance–Accrual Accounting.

**Unit II: MEASURING AND REPORTING INCOME** Income measurement–Accrual Accounting–Adjustment process– Post-closing Trial Balance and Reversing -Entries–Income measurement for a Merchandising organization–Worksheet for a merchandising organization –Preparation of Final Accounts.

**Unit III: MEASURING AND REPORTING ASSETS:** Internal Control system–Cash Receivables–Cash and Cash Equivalents–Bank Reconciliation–Trade- Receivables. Classification of Assets–Current Assets–Inventory Valuation– Financial Analysis of Inventories–Fixed Assets –Depreciation–Depreciation Methods. Investments– Financial Instruments and Financial Assets–Equity and Debt Instruments–Consolidated Income statement and Business Combination.

**Unit IV: MEASURING AND REPORTING LIABILITIES** Classification of Liabilities–Current liabilities–Contingent Liabilities–Long-Term Liabilities–Off-Balance sheet Financing. Share Capital–Accounting for Share Capital–Reserves and Surplus –Buy-back of shares and Treasury stock– Bonus Shares–Dividends–Statement of Changes in Equity–Company Final Accounts–Banking Company Final Accounts.

**Unit V:REPORTING STANDARDS AND COMPUTERIZATION:** Accountingstandard(Ind-AS)-Generally Accepted Accounting Principles(GAAP)- International Financial- Reporting Standards (IFRS)- eXtensible Business Reporting Language(XBRL).Computerised Accounting–Terms used in Computerised Accounting– Accounting Software– ERP Accounting –Core Banking Software and its components.

**Text Book and Reference Books:**

1. **R.Narayansamy,Financial Accounting- A Managerial Perspective,PHI Learning Private Limited,Seventh Edition, 2019-20**
2. Indian Institute of Banking and Finance, Accounting and Finance for Bankers, Macmillan Education, Fourth Edition, 2019-20.
3. Gupta R L and Radhaswamy M, Advanced Accounts, Vol II, Sultan Chand & Sons, New Delhi 2019-20
4. Jain S P and K L Narang, Advanced Accounts, Kalyani Publishers, Ludhiana 2019-20
5. Shukla M C and Grewal T S, Advanced Accounts, Vol II, S Chand & Co, New Delhi 2019-20

**Open Resources:** <https://onlinecourses.nptel.ac.in>,  
<https://swayam.gov.in/course><http://www.iibf.org.in><https://students.icai.org>

**Tools / Software:** Ms Excel, Tally

**SEMESTER I**  
**MBAB 414: BANKING PRINCIPLES AND PRACTICES**

**Hard Core: 3 Credit**

**Prerequisites:** Basic Knowledge of Banking

**Learning Objectives**

1. To introduce the Indian Banking and Financial system
2. To expose the developments taking place in the banking industry in the recent times

**Learning Outcome:**

1. Helps the students to comply with banking regulations in the banking sector.
2. To acquire required knowledge and demonstrate skills sets required for Banks

**Methodology:**

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

**Unit I: Developments in the Indian Financial system;** Market Structure and Financial innovation. Central Banking Authority- RBI, SEBI, IRDA - Functions of Banks – Regulatory provisions/enactments governing banks - Functions of Capital markets - Functions of Mutual Funds.

**Unit II: Retail banking-** Wholesale Banking- International banking; Functions of Banks- Deposits Products – Opening of Accounts - Know your Customer (KYC) Guidelines - Mandate and Power of attorney; Banker’s lien – right of set off – garnishee order – Payment and Collection of Cheque – duties and responsibilities of paying and collecting banker– endorsements – forged instruments – bouncing of cheques and their implications.

**Unit III: Principles of lending** – Various credit Products/ Facilities – Working capital and Term loans – Credit Appraisal Techniques – Credit management – Credit monitoring -NPA Management – Different types of documents and procedures; Stamping of documents Securities – Different modes of charging – Types of collaterals and their characteristics Priority Sector Lending - Financial Inclusion Agriculture/SMEs/SHGs/SSI/Tiny Sector financing- Consortium Financing – CIBIL Procedures.

**Unit IV: Legal Aspects of banks** - Important Provisions of RBI Act, 1934 – Salient Features of Banking Regulations Act 1949 and Negotiable Instrument Act 1881 – Overview of Bankers Book of Evidence Act 1879 and Indian Contract Act 1872.

**Unit V: Ancillary Services of Banks** - Remittances, Safe Deposit Lockers- Merchant Banking - Credit Information Bureau (India) Limited- Fair Practices Code for Debt Collection - Banking Codes and Standards Board of India - Financial Inclusion, SHGs - Lead bank Scheme - Financial Innovation- ADR & GDR. New Products & Services -Factoring, Securitisation, bancassurance.

**Text Book and Reference Books:**

1. **IIBF, Principles and Practices of Banking, 3rd Edition, MacMillan Education. 2015**
2. IIBF, Legal and Regulatory Aspects of Banking, 3rd Edition, MacMillan Education. 2015
3. M.Y.Khan, Indian Financial System, McGraw Hill Education Pvt. Ltd, 9th Edition, 2015
4. Preethi Singh, Dynamics of the Indian Financial system: Markets, Institutions and Services, Ane Books.
5. V.Nityanada Sharma, Banking and Financial System, Cambridge University Press-, 2011.

**Open Resources:**<http://www.iibf.org.in/>,<https://mastercirculars.rbi.org.in/>

**Tools / Software:** - NA



**SEMESTER I****MBAB 415: SYSTEM ANALYSIS & DESIGN & AGILE SOFTWARE DEVELOPMENT****Hard Core: 3 Credit****Prerequisites:** Basic knowledge of system analysis and design.**Learning Objectives:**

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

**Learning Outcome:**

1. To gain knowledge to analyze and develop business systems more effectively and efficiently
2. To acquire practical knowledge to develop the business systems using UML and Agile Methodology

**Methodology:**

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

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

**Unit II: 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:** Motivation – Evidence – Scrum – Extreme Programming – Unified Process – Agile- Evo-Practice Tips-Banking Case Study

**Text Books and Reference Books**

1. Dennis, A., Wixom, B. H., & Roth, R. M. (2018). *Systems analysis and design*. John Wiley & sons.
2. Larman, C. (2004). *Agile and iterative development: a manager's guide*. Addison-Wesley Professional.
3. Hendrickson, E. (2012). *Agile Testing, Nine Principles and Six Concrete Practices for Testing on Agile Teams*. I: Quality Tree Software.
4. Bahrami, A. (2010). *Object Oriented Analysis and Design*. McGraw-Hill Higher Education.
5. Bentley, L. D., Dittman, K. C., & Whitten, J. L. (2006). *Systems analysis and design methods*. Irwin/McGraw Hill.
6. Shelly, G. B., Cashman, T. J., & Rosenblatt, H. J. (2011). *Systems Analysis and Design*. 5th. Edition. Boston: Thomson/Course Technology.
7. Martin, R. C. (2013). *Agile software development: principles, patterns, and practices*. Prentice Hall.
8. Shore, J. (2012). *The Art of Agile Development: Pragmatic guide to agile software development*. " O'Reilly Media, Inc."

**Open Resources:** Research papers from Journals and Conferences with Open Access**Tools/Software:** Open-Source Tools

## SEMESTER I

## MBAB 416: DATA CENTRE MANAGEMENT AND CLOUD COMPUTING

Hard Core: 3 Credit

**Prerequisites:** Fundamentals of Operating Systems, Memory Management**Learning Objectives**

1. To Understand the Various storage technology
2. To Understand usage of different technologies required to build data center

**Learning Outcome:**

1. To gain knowledge in data center management.
2. To acquire knowledge about various supporting activities to enhance business

**Methodology:**

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

**Unit I: Introduction to Storage Technology:** Review data creation and the amount of data being created and understand the value of data to a business, challenges in data storage and data management, Solutions available for data storage, Core elements of a data center infrastructure, role of each element in supporting business activities.

**Unit II: Storage Systems Architecture:** Hardware and software components of the host environment, Key protocols and concepts used by each component, Physical and logical components of a connectivity environment, Major physical components of a disk drive and their function, logical constructs of a physical disk, access characteristics and performance Implications, Concept of RAID and its components, Different RAID levels and their suitability for different application environments, Compare and contrast integrated and modular storage systems, high-level architecture and working of an intelligent storage system.

**Unit III : Information Availability, Monitoring & Managing Data center:** The reasons for planned/unplanned outages and the impact of downtime, -Difference between business continuity (BC) and disaster recovery(DR), RTO and RPO, Single points of failure in a storage infrastructure and solutions to mitigate these failures, Architecture of backup/recovery and the different backup/recovery topologies, replication technologies and their role in ensuring information availability and business continuity, Remote replication technologies and their role in providing disaster recovery and business continuity capabilities. Key areas to monitor in a data center, Industry standards for data center monitoring and management, Key metrics to monitor for different components in a storage infrastructure, Key management tasks in a datacenter.

**Unit IV: Networked Storage and Virtualized Data Centre:** Evolution of networked storage, Architecture, components, and topologies of FC-SAN, NAS, and IP-SAN, Benefits of the different networked storage options. CAS for long-term archiving solutions. The appropriateness of the different networked storage options for different application environments. Virtualization of core technologies in data center—Fundamental concepts of computer, storage, networking, desktop and application virtualization. Securing Storage and Storage Virtualization-block-level and file-level virtualization technologies and processes.

**Unit V: Cloud Computing and Infrastructure:** Business drivers for Cloud computing, Definition of Cloud computing, Characteristics of Cloud computing as per NIST, Steps involved in transitioning from Classic data center to Cloud computing environment. Different Cloud services and deployment models, Cloud infrastructure components, and Cloud service creation processes. Cloud service management processes, Cloud service consumers. Cloud services models, Cloud deployment models, Economics of Cloud.

**Text Book and Reference Books:**

1. EMC Corporation, **Information Storage and Management**, Wiley, India
2. Robert Spalding, "Storage Networks: The Complete Reference", Tata McGraw Hill, Osborne,
3. Marc Farley, **Building Storage Networks**, Tata McGraw Hill, Osborne, 2001.
4. IBM, **Introduction to Storage Area Network and System Networking**, Fifth Edition, 2012
5. Additional resource material on—[www.emc.com/resource-library/resource-library.esp](http://www.emc.com/resource-library/resource-library.esp)

**Open Resources:** Research papers from Journals and Conferences with Open Access**Tools/Software:** Open-Source Tools

**SEMESTER I**  
**MBAB 417: BUSINESS COMMUNICATION AND LAB**

**HardCore3 Credit**

**Prerequisite:** Basics of English Grammar

**Learning Objectives:**

1. To develop effective communication skills and interpersonal relations
2. To motivate and manage life incidents

**Learning Outcomes:**

1. To gain knowledge to have communication skill, writing of business correspondence and
2. To interact with different levels of managers/authorities.

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

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.

**Open Resources:** store.hbr.org

**Tools / Software:** - NA

**SEMESTER I**  
**MBAB 418: MODELLING AND DESIGN LAB**

**Hard Core: 2 Credit**

**Prerequisite:** Basics of Object-oriented Concepts

**Learning Objectives:**

1. To introduce the hands-on-experience to build and manage the financial information systems
2. To introduce the concept and design principles using UML diagrams.

**Learning Outcomes:**

1. To gain Design and Develop Financial Information Software applying Object Oriented Modeling approach using typical Case Tool
2. To acquire the knowledge to design and develop systems using UML and Agile Methodology

**Methodology:**

Lecture, Discussion, Case studies, problem and games

**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)

**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.

**Agile Software Development using Agile tools**

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

<b>SEMESTER II</b>			
MBAB 421	Banking Operations and Management	Hard	3
MBAB 422	Entrepreneurship and Start-ups	Hard	3
MBAB 423	Security Analysis and Portfolio Management	Hard	3
MBAB 424	Financial Statement Analysis	Hard	3
MBAB 425	Banking Technology Management	Hard	3
MBAB 426	IT Infrastructure Management for Banks	Hard	3
MBAB 427	Banking Technology Lab	Hard	2
MBAB 428	Corporate Finance Lab	Hard	2
MBAB	Elective 1: Paper – 1	Soft	3
MBAB	Elective 2: Paper – 1	Soft	3
<b>SEMESTER II CREDITS</b>			<b>28</b>

**SEMESTER II**  
**MBAB 421: BANKING OPERATIONS AND MANAGEMENT**

**HardCore3 Credit**

**Prerequisite:** Basics of Banking

**Learning Objectives:**

1. To expose various management aspects of banks in India
2. To introduce the overview of risk management in Banks

**Learning Outcomes:**

1. To gain the knowledge on various aspects of guidelines governing Indian Banks
2. To acquire the practical knowledge to who join the banking industry to excel in the industry

**Methodology:**

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

**Unit I:** BIS-Basel Committee Norms– Risk Management in Banks – Liquidity Management Practices–RBI Guidelines–Asset Liability Management– Gap Analysis–Liquidity Risk Management

**Unit II:** Interest rate Risk Management in Banks - Source of interest rate risk – organizational infrastructure requirement - Policies and procedures – Interest rate risk effects – Stress testing – risk monitoring and reporting.

**Unit III:** Credit Risk Management: CreditPolicy-CreditMonitoringandRecoveryManagement–NonPerformingAssets–ManagementofNPAs-Instruments of Credit Risk Management- Credit Rating Framework – Portfolio management and risk limits – Off balance sheet exposure – country risk- Loan Review mechanism and Audit. Lok Adalat – Debt Recovery Tribunal – Prompt Corrective Action.

**Unit IV:** Operational Risk Management in Banks - Organizational set-up and Key responsibilities for Operational Risk- Identification, Assessment and Monitoring of Operational Risk - Controls / Mitigation of Operational Risk - Independent evaluation of Operational Risk Management.

**Unit V:** Latest Development in Indian Banking: ConsolidationinBankingsector–PrudentialNorms–IRACNorms-CapitalAdequacyNorms-ExposureNormsforAdvances and Investments– SARFAESI Act- Insolvency and Bankruptcy Code – AML and its compliance.

**Text Book and Reference Books:**

1. IIBF, Advanced Bank Management, 3rd Edition, MacMillan Education. 2015
2. IIBF, Risk Management, 3rd Edition, MacMillan Education. 2015
3. IIBF, Bank Financial Management, 3rd Edition, MacMillan Education. 2015
4. W.Koch, S.Scott Mac Donald Timothy Bank Management, 8th Edition, Cengage Learning
5. John a.Haslem, Banks Fund Management, Pearson Education.

**Open Resources:** <https://www.rbi.org.in/>, <http://www.iibf.org.in/>

**Tools / Software:** - NA

**SEMESTER II**  
**MBAB 422: ENTREPRENEURSHIP AND START-UPS**

**Hard Core: 3 Credit**

**Prerequisite:** Basic Knowledge in Business

**Learning Objective:**

1. To create a learning experience to enable the students to face the challenges of starting new ventures.
2. To prepare the students for starting new business and the skills for managing existing family business.

**Learning Outcomes:**

1. To gain knowledge in business plan preparation by using various sources of finance
2. To acquire knowledge to become entrepreneurs in different fields.

**Methodology:**

Lecture, Discussion, Case studies, observations, presentation, Proposals

**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 - The Entrepreneur's Role, Task and Personality - Defining Survival and Success

**Unit II:** Role of Government: Government push for startups-facilities-training- approaching government-innovative ideas-different departments –SME-Ministry of company affairs –NITI Ayog-State government supports-licensing- various schemes.

**Unit III:** Understanding Startup Finances and Capital Requirements-An Overview of Startup Finances and Sources of Investment Capital - Developing- Financial Projections—How to Forecast Expenses and Revenue Case Discussion: Raising Seed Financing Workshop: Capitalization and Ownership for New Ventures

**Unit IV:** Developing and Presenting Startup Business Plan The Venture Communication -Communication for Startups Examining Sample Business Plans and Executive Summaries Workshop: Business Plan Critique The Art of the Venture Presentation Developing Entrepreneurial Marketing: Competencies, Networks and Frameworks Gathering Resources

**Unit V:** Launching and Managing the Startup Enterprise Maintaining Competitive Advantage The Changing Role of the Entrepreneur: Mid-Career Dilemmas What to Expect During the "Launch Stage" Where to Focus First? The Imperatives of the Launch Stage Legal Issues Facing Entrepreneur Building Your Team

**Text Book and Reference Books:**

1. **Barringer, Bruce R. Entrepreneurship: Successfully launching new ventures Pearson Education India, 2008.**
2. Drucker, Peter F., and Peter Ferdinand Drucker. Innovation and entrepreneurship: Practice and principles. Routledge, 2007.
3. Kuratko, Donald F., and Richard M. Hodgetts. Entrepreneurship: A contemporary approach. Fort Worth,;: Harcourt College Publishers, 2001.
4. Timmons, Jeffrey A., and Stephen Spinelli. "New venture creation: Entrepreneurship for the 21st century." (1999).
5. Timmons, Jeffrey A. The Entrepreneurial Mind. Brick House Publishing 1989.

**Open Resources:** <https://www.startupindia.gov.in/>

**Tools / Software:** - NA

**SEMESTER II****MBAB 423: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT****Hard Core: 3 Credit****Prerequisite:** Basics of Finance**Learning Objective:**

1. To provide the basics of investment analysis, fundamental and technical analysis about the companies and markets.
2. To impart the knowledge and skills to value and price the equity using different models.

**Learning Outcomes**

1. To gain knowledge in analyzing securities
2. To acquire knowledge to start stock broking firm also to join financial consultancy firms

**Methodology:**

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

**Unit I:** Investment: Meaning–Features - Alternatives - Investment, Speculation and Gambling – Indian Capital Market – Primary Market and Secondary Markets – Processes of Buying and Selling Securities – Secondary Markets – Types – Stock Exchanges – OTCEI – Depository – 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 Books and Reference Books:**

1. **Fisher&Jordan,,,"PortfolioManagement",PrenticeHall,NewYork,2012.(TextBook)**
2. ReillyBrown,InvestmentAnalysisandPortfolioManagement,CengageLearning 8<sup>th</sup> Edition2006
3. Alexander,Gordon JandSharpe,WilliamF.,FundamentalsofInvestment,Englewood Cliffs,NewJersey,PrenticeHallInc,2004
4. Elton,EdwinJandGruber,MartinJ.,ModernPortfolioTheoryandInvestmentAnalysis, JohnWiley,NY,2001
5. Lee,ChengF.,et.al.,SecurityAnalysis andPortfolioManagement,Foresman, Scott,1999 JackClarkFrancis,Investments,PrenticeHallInc,NY,2004

**Open Resources:** <https://www.bseindia.com/>, <https://www.nseindia.com/>

**Tools/Software:** Excel



**SEMESTER II**  
**MBAB 424: FINANCIAL STATEMENT ANALYSIS**

**Hard Core: 3 Credit**

**Prerequisite:** Basic knowledge in Financial Accounting

**Learning Objective:**

1. To analyze and interpret Financial statements for Managerial Decision Making
2. To understand the role of Information Technology for analyzing Financial Statements

**Learning outcome:**

1. To gain knowledge and skills in analyzing and interpreting financial statements.
2. To acquire knowledge to apply efficient and effective approach to rescheduling, interpreting and analyzing financial statements

**Methodology:**

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

**Unit I: Financial Analysis Tools and Techniques-** Objectives of Financial Statement Analysis – Horizontal vs. Vertical Analysis - Tools and Techniques of Financial Statement Analysis – Sources of Information – Standards for Comparison – Comparative, Common-Size and Trend Analysis.

**Unit II: Ratio Analysis** Classification – Profitability Ratios - Short Term Liquidity Ratios - Operating Performance and Efficiency Ratios– Capital Structure and Long Term Solvency Ratios – Market measures Ratio – Analyzing Bank Financial Statements – Ratios for Trading, Manufacturing and Service organizations. Forecasting Financial Statements - One Year Projection – Sensitivity Analysis – Contribution Margin Analysis – Projecting Financial Flexibility – Multiyear Projection

**Unit III: Fund and Cash Flow Analysis-** Concept of Funds – Funds Flow Statement – Statement of Changes in working capital - Calculation of Funds from operation – Sources of Funds – Applications of Funds – Preparation of Funds Flow Statement. Uses and Structure of Cash Flow Statement – Preparation of Cash flow statement – Determining Net Cash flow from Operating Activities - Direct and Indirect Method - Determining Cash flow from Investing Activities - Determining Net Cash flow from Financing Activities – Reporting Cash Flows – Interpreting the Cash Flow Statement.

**Unit IV: Cost-Volume-Profit Analysis-** Marginal Costing – Assumptions of Marginal Costing – Marginal Costing vs. Absorption Costing – Profit /Volume Ratio – Cost-Volume-Profit Analysis – Break-Even Analysis – Margin of Safety – Managerial Applications of Marginal Costing.

**Unit V: Budgetary Control and Variance Analysis-** Budget, Budgeting and Budgetary Control – Essentials of Budgetary Control – Budgeting vs. Forecasting –Classification and Types of Budgets – Zero-Base Budgeting – Activity based Budgeting – Analysis of variance –Material, Labour, Overhead and Sales variances.

**Text Books and Reference Books:**

1. Martin S. Fridson, Fernando Alvarez, **Financial Statement Analysis: A Practitioner's Guide**, Wiley India Private Ltd Finance, Fifth Edition, 2019-20.
2. Shashi K. Gupta & R. K. Sharma, **Management Accounting Principles and Practice**, Kalyani Publishers, 14<sup>th</sup> Edition, 2019-20.
3. K. Scott Proctor, **Building Financial Models with Microsoft Excel – A Guide for Business Professionals**, Wiley India Private Ltd Finance, 2019-20.
4. John J. Wild, K. R. Subramanyam, **Financial Statement Analysis**, Mc Graw Hill Education, Latest edition

**Open Resources:** <https://swayam.gov.in/course>, <http://www.iibf.org.in>, <https://students.icai.org>

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

**SEMESTER II**  
**MBAB 425: BANKING TECHNOLOGY MANAGEMENT**  
**Hard Core: 3 Credit**

**Prerequisite:** Basics of Banking and IT

**Learning Objective:**

1. To understand of Core Banking and Technologies involved in it.
2. To understanding of Banking Channels and Payments gateways.

**Learning Outcomes**

1. To gain knowledge about CBS components and other banking software
2. To acquire practical knowledge on Banking Technology

**Methodology:**

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

**Unit I: Branch Operation and Core Banking-** Introduction and Evolution of Bank Management Analysis of Rangarajan - Committee Reports - Technological Impact in Banking Operations– Total Branch Computerization - Concept of Opportunities– Centralized Banking – Concept, Opportunities, Challenges & Implementation.

**Unit II: Delivery Channels** -Overview of delivery channels – Automated Teller Machine (ATM) – Phone Banking –Call centers – Internet Banking – Mobile Banking- USSD, UPI, BHIM – Payment Gateways – Card technologies – MICR electronic clearing.

**Unit III: Back office Operations-** Bank back office management –Inter branch reconciliation – Treasury Management– Forex Operations – Risk Management – Data center Management – Network Management – Knowledge Management (MIS/DSS/EIS) – Customer Relationships Management (CRM).

**Unit IV: Interbank Payment System – INFINET** Interface with Payment system Network– Structured Financial Messaging system –Electronic Fund transfer – RTGSS – Negotiated Dealing Systems & Securities Settlement Systems – Electronic Money – E Cheques.

**Unit V : Contemporary Issues in Banking Techniques** Block Chain and Bit-coin – Crypto currency Analysis of Recent Core Banking Software-Case study.

**Text Books and References:**

1. **Financial Services Information Systems-Jessica Keyes Auerbach publication**
2. Kaptan SS & Choubey NS., E-Indian Banking In Electronic Era, Sarup& Sons, 2013.
3. Vasudeva,E–Banking, Common Wealth Publishers, New Delhi, 2010
4. Turban Rainer Potter, Information Technology, John Wiely& Sons Inc,2012.
5. Banking Technology – Indian Institute of Bankers Publication,2010.

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

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

**SEMESTER II****MBAB 426: IT INFRASTRUCTURE MANAGEMENT FOR BANKS****Hard Core: 3 Credit****Prerequisite:** Basic knowledge of principles and practices of Computer System Security.**Learning Objectives:**

1. To expose the emerging areas of IT Infrastructure and its Management focuses on the IT governance and risk management.
2. To understand the risk management framework, IT infrastructure management, ITIL service delivery and other frameworks.

**Learning Outcomes:**

1. To gain knowledge in IT infrastructure management services.
2. To acquire practical knowledge to develop IT infrastructure management for banks.

**Methodology:**

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

**Unit I:** Server Management–Storage Management–Application Management–Information Life Cycle Management–Network Management– Security Management– Tools and Standards for Server, Storage, Application, Information Life Cycle Management, Network and Security Management

**Unit II:** IT Services Management– Service Management as a practice– Service strategy principles–Service economics–Strategy and Organization–Strategy, tactics and operations –Service Design principles–Service Design processes–Service Design Technology related activities –Implementing Service Design

**Unit III:** Service Transition principles– Service Transition processes– Service Transition common operations–Implementing service transition–challenges, critical success factors and risk.

**Unit IV:** Service Operation principles-Service Operation processes–Common Service Operation activities –Implementing service operation

**Unit V:** Continual Service Improvement principles- Continual Service Improvement processes – Continual Service Improvement methods and techniques–Implementing Continual Service Improvement.

**Text Books and References:**

1. Office of Government Commerce,—ITIL–Service Strategy, TSO, London, 2007
2. EMC, Information Storage Management:—Storing, Managing and Protecting Digital Information, Wiley 2009
3. Gilbert Held, Server Management, Best Practices Series, Aurebach Publications, 2000.
4. Stephan R.Kass, —Information Life Cycle Management, Wood head Publishing, 2006
5. Alexander Clemm, Network management Fundamentals, Cisco Press, 2012

**Open Resources:** Research papers from Journals and Conferences with Open Access**Tools/Software:** Open-Source Tools

**SEMESTER II**  
**MBAB 427: BANKING TECHNOLOGY LAB**

**Hard Core: 2 Credit**

**Prerequisite:** Computer Programming knowledge to develop banking software

**Learning Objectives:**

1. This lab imparts knowledge of design and development of banking software like Mobile Banking, Internet Banking, ATM system and Financial Middleware. Also, it focuses on a detailed study on the recent core banking software.

**Learning Outcomes:**

1. Helps the students to build a solution for Banking systems

**Methodology:**

Exercise, Mini project and Assignments

**Lab Exercises**

Design and Develop the following Banking Software using the appropriate technologies:

- Mobile Banking
  - Balance Enquiry
  - Cheque book Request
  - Stop Cheque
  - Credit/Debit Notification
  - Bill Payment
  
- Internet Banking
  - Electronic Funds Transfer
  - Account Management
  - Loan Application
  - Registering of new bank services
  - Customer Information Management
  
- ATM system
  - Balance Enquiry
  - Withdrawal
  - Deposit
  - Pin change
  - Mini statement
  
- Financial Middleware
  - Design of Online Banking Middleware
  - ATM Middleware
  - Mobile Middleware
  - Banking Software Middleware
  
- Case Study on the recent Core Banking Software.

**SEMESTER II**  
**MBAB 428: CORPORATE FINANCE LAB**

**HardCore2 Credit**

**Prerequisites:** Basic Accounting & MS Excel

**Learning Objectives:**

1. To give the hands-on experience using real live data also it will help the students to give financial consultancy firms.

**Learning Outcome:**

1. To prepare the students to take financial decisions
2. To acquire skills sets required for data cleaning and preparation

**Methodology:**

Exercise, Case studies, Assignments and mini projects

**List of Practical**

Based on Annual Reports of Companies:

- Analysis of Financial Statements based on the any five select annual reports, Important Ratios, Funds Flow Analysis statements, Examining the trends over a period of time, Comparison between cross category ratios, cross sectional analysis

Software Based:

- Extraction of Industry wise data on select fundamentals
- Extraction of Company specific data
- Annual data on select indicators across companies in a given industry
- Data on select Big Business Houses in India
- Data on Capital structure designs of select industries
- Sector wise Stock Price Indices
- Company specific Price charts and identification of

Events Excel Based Exercises:

- Estimation of Daily Returns, Weekly Returns, Monthly, Quarterly and Half yearly returns
- Calculation of Geometric Mean and Standard deviation to returns
- Estimation of Beta for select stocks in select industries
- Working out leads and lags in the stock

Market SPSS Based Exercises:

- Calculation of correlation between funds and stock returns
- Estimation of Multiple Regression Equation between select firm values and market returns
- Dummy value regressions, step-wise regressions
- Multivariate Analysis: Factor Analysis and Principle Component Analysis
- Discriminate functions and Credit Rating
- Cluster Analysis and Data distances

**Text Books and Reference Books:**

1. **Winston, Wayne. Microsoft Excel data analysis and business modeling. Microsoft press, 2016.**
2. **Gottlieb, Isaac. Next Generation Excel: Modeling in Excel for Analysts and MBAs (for MS Windows and Mac OS). John Wiley & Sons, 2013.**

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

**Tools/Software:** MS Excel

<b>SEMESTER III</b>			
MBAB 511	Financial Management	Hard	3
MBAB 512	Digital Marketing and CRM	Hard	3
MBAB 513	Strategic Management	Hard	3
MBAB 514	Information Security for Banks	Hard	3
MBAB 515	Data Warehousing and Business Intelligence	Hard	3
MBAB 516	Business Intelligence Lab	Hard	2
MBAB 517	Stock and Forex Trading Lab	Hard	2
MBAB 518	Bank Internship	Hard	4
MBAB	Elective I: Paper – 2	Soft	3
MBAB	Elective II: Paper – 2	Soft	3
<b>SEMESTER II CREDITS</b>			<b>29</b>

**SEMESTER III**  
**MBAB 511: FINANCIAL MANAGEMENT**

**Hard Core: 3 Credit**

**Prerequisites:** Basic knowledge on Finance and Accounting

**Learning Objectives:**

1. To introduce the concepts and the theories related to Financial Planning and Financial Functions of a company
2. To Facilitate the learning of various financial decision

**Learning outcome:**

1. To understand and appreciate the concepts of corporate financial functions.
2. To gain knowledge and apply the techniques related to effective raising and utilizations of funds.

**Methodology**

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

**Unit I:** Financial Management- Financial Management: Introduction, Meanings and Definitions, Goals of Financial Management, Finance Functions, Interface between Finance and Other Business Functions - Financial Planning: Introduction, Objectives, Benefits, Guidelines, Steps in Financial Planning, Factors Affecting Financial Planning, Estimation of Financial Requirements of a Firm, Capitalization - Time Value of Money: Introduction, Rationale, Future Value, Present Value - Valuation of Bonds and Shares: Introduction, intrinsic value, book value, Valuation of Bonds, Valuation of Shares.

**Unit II:** Cost Of Capital, Leverage And Capital Structure- 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- Capital Budgeting: Introduction, Importance of Capital Budgeting, Complexities Involved in Capital Budgeting Decisions, Phases of Capital Expenditure Decisions, Identification of Investment Opportunities, Rationale of Capital Budgeting Proposals, Capital Budgeting Process, Investment Evaluation, Appraisal Criteria - Risk Analysis in Capital Budgeting: Introduction, Types and Sources of Risk in Capital Budgeting, Risk Adjusted Discount Rate, Certainty Equivalent Approach, Probability Distribution Approach, Sensitivity Analysis, Simulation Analysis, Decision Tree Approach - Capital Rationing: Introduction, Types, Steps Involved in Capital Rationing, Various Approaches to Capital Rationing.

**Unit IV:** Lease Finance And Dividend Decisions- Evaluation of lease contracts: Introduction – Meaning and essential – Classification – Financial lease – Operating lease –Sales and lease back – Indirect lease; Corporate Restructuring: Introduction – Scope – Types; Financial Restructuring: Share split – Consolidation – Cancellation of paid up capital - Dividend Decisions: Introduction, Traditional Approach, Dividend Relevance Model, Miller and Modigliani Model, Stability of Dividends, Forms of Dividends, Stock Split

**Unit V:** Management of Working Capital- 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: Introduction, Role of Inventory in Working Capital, Characteristics of inventory, Purpose of Inventory, Costs Associated with Inventories, Inventory Management Techniques, Importance of Inventory Management Systems - Receivable Management: Introduction, Costs Associated with Maintaining Receivables, Credit Policy Variables, Evaluation of Credit Policy.

**Text Books and Reference Books:**

1. Khan MY, Jain PK., **Financial Management, Tata Mc Hill, New Delhi, 2019-20**
2. Pandey I M., **Financial Management, Vikas Publishing House, Delhi, 2019-20**
3. Chandra, Prasanna: **Financial Management, Tata McGraw Hill, Delhi, 2019-20**
4. Van Horne, James C: **Financial Management and Policy, Prentice Hall, Delhi, 2019-20**
5. Brigham, Eugene and Ehrhardt C Michael., **Financial Management: Theory and Practice, 2019-20**

**Open Resources:** <https://students.icai.org>

**Tools/Software:** MSExcel, PowerBI, Tableau

**SEMESTER III**  
**MBAB 512: DIGITAL MARKETING AND CRM**  
**Hard Core: 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 III**  
**MBAB 513: STRATEGIC MANAGEMENT**

**Hard Core: 3 Credit**

**Prerequisites:** Basics of Management Concepts

**Learning Objectives:**

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

**Learning Outcomes:**

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

**Methodology:**

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

**Unit-I: Introduction:** Concepts in Strategic Management, Strategic Management as a process –Developing a strategic vision, Mission, Objectives, Policies– Factors that shape a company’s strategy – Crafting a strategy - Industry and Competitive Analysis

**Unit-II: Environmental Scanning and leadership:** Methods. SWOT Analysis – Strategies and competitive advantages in diversified companies and its evaluation. Strategic Analysis and Choice: Tools and techniques- Strategic Leadership: Leadership and Style – Key Strategic Leadership Actions - Developing Human Capital and Social Capital – Balanced Scorecard.

**Unit-III: Strategy Formulation:** Strategy Framework For Analyzing Competition, Porter’s Value Chain Analysis, Competitive Advantage of a Firm, Exit and Entry Barriers - Formulation of strategy. Types of Strategies – Tailoring strategy to fit specific industry – restructuring and diversification strategies – Different methods Turnaround strategy

**Unit-IV: Strategy Implementation:** Strategy and Structure, Leadership, culture connection - Strategies for competing in Globalizing markets and internet economy – Organizational Values and Impact on Strategy– Resource Allocation – Planning and implementation.

**Unit-V: Strategy Evaluation and Control** – Establishing strategic controls - Measuring performance – Appropriate measures- Role of the strategist – using qualitative and quantitative benchmarking to evaluate performance - Strategic information systems – Problems in measuring performance – Strategic surveillance - strategic audit.

**Text Books and Reference Books:**

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

**Open Resources:**

1. The Global Emerging Market: Strategic Management and Economics
2. "Competition and Business Strategy in Historical Perspective
3. "Dynamic Capabilities and Strategic Management"
4. Henry Mintberg-The Fall and Rise of Strategic Planning-Harvard Business Review-January 1994

**Tools/Software:** NA

**SEMESTER III**  
**MBAB 514: INFORMATION SECURITY FOR BANKS**

**Hard Core: 3 Credit**

**Prerequisites:** Basic knowledge of principles and practices of Computer System Security.

**Learning Objectives**

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

**Learning outcome**

1. To gain knowledge in identifying the weakest component in the computer systems
2. To acquire practical knowledge to protect and countermeasure against attacks.

**Methodology:**

Lecture, Discussion, Case studies, problem and games

**Unit I: Introduction to Information Security:** Information Security Overview – Importance of Information Security – Security Methodology. Risk Analysis: Threat – Types of Attacks – Compliance with Information security standards, Regulations and Laws – 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.

**Unit III: Securing Infrastructure Services:** Security Technology – Access Controls – Firewalls – Virtual Private Networks – Intrusion detection and Prevention Systems.. 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.

**Unit V: Recent Trends in Security:** Case Studies: Analyze Information security for Banking Systems, Case study on INFINET etc.

**Text Books and Reference Books:**

1. Mark Rhodes – Ousley, “Information Security, The Complete Reference”, 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 Tools

**SEMESTER III**  
**MBAB 515: DATA WAREHOUSING AND BUSINESS INTELLIGENCE**  
**HardCore3 Credit**

**Prerequisites:** Relational Data Base Management System, Statistics and Algorithms

**Learning Objectives:**

1. To develop and gain an understanding of the principles, concepts, functions and uses of data warehouses, data modelling and data mining in business.
2. To focus on data model for data warehouses and implementing data warehouses: data extraction, cleansing, transformation and loading, data cube computation, materialized view selection, OLAP query processing.

**Learning outcome:**

1. To gain knowledge to use current techniques, skills, and tools necessary for extraction, transformation, loading and mining of data.
2. To acquire practical knowledge on using those data on managerial decision making

**Unit I:** The Business Dimensional Lifecycle – Project Planning and Management –Dimensional Modelling – Advanced Dimensional Modelling.

**Unit II:** Data Warehouse architecture – Back room technical architecture – architecture for the front room – infrastructure and metadata – selecting the products.

**Unit III:** Aggregates – physical design – data staging – planning the deployment – maintaining and growing the data warehouse.

**Unit IV:** Data mining – motivation – functionalities – data for data mining – data pre-processing need – data summarization – data cleaning – data integration and transformation – data reduction – data discretization and concept hierarchy generation.

**Unit V:**Pattern, Classification& Clustering : Mining frequent patterns, associations and correlations – basic concepts – apriori algorithm – classification and prediction – introduction -classification by decision tree induction – cluster analysis – types of data in cluster analysis – k-Means and k-Medoids – Mining time series Data – Trend Analysis.

**Text Books and Reference Books:**

1. **Kimball, Ralph; Reeves, Laura et al, “Data warehouse lifecycle toolkit: Expert methods for designing, developing, and deploying data warehouses”, John Wiley & Sons, 2012.**
2. Han, Jiawei; Kamber, Micheline, —Data mining: concepts and techniques, Morgan Kaufmann Publishers, 2012. (Text Book)
3. Paulraj Ponniah, — Data Warehousing Fundamentals: A Comprehensive Guide for IT Professionals, Wiley Publications, 2014.
4. Ralph Kimball, Margy Ross, — The Data Warehouse Toolkit, Wiley Publications, 2012.
5. Arun K. Pujari, Data Mining Techniques, Oxford Universities Press, 2010.

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

**Tools/Software:** Open Source Tools

**SEMESTER III**  
**MBAB 516: BUSINESS INTELLIGENCE LAB**

**Hard Core: 2 Credit**

**Prerequisites:**

RDBMS, Data warehouse and Data Mining

**Learning Objectives:**

1. This lab imparts the practical knowledge of the techniques and tools to provide effective business intelligence.
2. It enables the students to leverage data warehousing and data mining to solve business problems faster by using online analytical processing, data warehousing and data mining tools. Also, this lab offers a comprehensive knowledge and strategic analysis of the data mining and warehousing technologies.

**Learning outcome:**

1. On successful completion of the course, the students will be able to use current techniques, skills, and tools necessary for business intelligence to make suitable decisions.

**Methodology:**

Exercise, Case studies, Assignments and mini projects

- 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

**SEMESTER III**  
**MBAB 517: STOCK AND FOREX TRADING LAB**

**Hard Core: 2 Credit**

**Prerequisites:**

Basic knowledge on Financial Market Operation

**Learning Objectives:**

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

**Learning outcome:**

1. Students who complete this course can do stock and Forex trading

**Methodology:**

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

**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 Books 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. Prasanna Chandra, Security Analysis and Portfolio Management, Tata McGraw-Hill. 4.

**Open Resources:** <https://www.investopedia.com/>, Yahoo Finance, SEBI NSE Website

**Tools/Software:** <https://moneybhai.moneycontrol.com/>, NSE Virtual Trading Platform

**SEMESTER III**  
**MBAB 518: BANK INTERNSHIP**

**Hard Core: 4 Credit**

**Prerequisites:** Basic Knowledge in Banking

**Learning Objectives:**

Banking Internship is to be carried out for 2 months in a Bank Branch. Students should attend to different regular activities of a Bank. All public sector /Private Sector bank branches with different operations like different deposit accounts, Credit facilities for Agricultural Loans, Educational Loans, Working capital Trade credit etc are the Branches where students should undertake This Internship. Minimum 45 Physical attendance for Full day is Mandatory. A report is to be prepared on the following topics with copies of forms, documents of that given bank duly certified by the Branch Manager is to be submitted and it will be evaluated by 2 DGM/AGM level Bank officers. A viva will be conducted to evaluate the Knowledge and skills learned by students during 2 months Long Internship.

**Learning Outcome:**

1. To acquire practical knowledge and understanding

**Methodology:**

Hands on Training in Banks

- Practicing the formalities regarding opening a Savings Bank Account
- Practicing the formalities regarding opening a Current Account -Practicing the formalities regarding opening Term Deposits-NRE/FCNR accounts opening formalities
- Administration of Cash Departments in the Branch-Securities aspects in the Bank branch Activities regarding withdrawal of cash-List of activities carried out Teller / Cash Counter -Procedures for calculation of interests on deposits and loan account- Inward and outward
- Bills Collection activity-Clearing House Operations.-MICR clearing, High value clearing and RTGS-Electronic Funds Transfer, DD, Mail Transfer, Telegraphic/ Telephonic transfer-Different types of crossing cheque and activities associated with them -Extension of Bank overdraft facility in SB and CD accounts
- Procedure to be followed for sanctioning a gold loan-Appraisal of loan application of ISB loan-Sanctioning of working capital credit line-Formalities associated with documentation of Security-Agency Services: Issue of drafts-Periodic Payments- Merchant Banking activities:
- Bankers to IPO issues – Treasury operations: Barriers to Government- List of subsidiary books operated and writing final ledger- Checking the balances-Day-to-day vouching procedures Miscellaneous services offered by banks- Gift Cheques, Pay orders, Bankers Cheque-Power of Attorneys-Fore closing accounts and activating dormant deposits-Discounting bills and cheques Locker facility–safe deposit services Loan against securities/deposits/LIC policies -Advances against hypothecation of goods- Advances against book debts and supply bills-LC/LG facilities/documentation Precautions for averting frauds / Preventive vigilance

**Text Books and Reference Books:** NA

**Open Resources:** <https://www.rbi.org.in/>, <http://www.iibf.org.in/>, <https://www.iba.org.in/>,

**Tools/Software:** NA

**SEMESTER IV**

<b>SEMESTER IV</b>			
MBAB 521	Machine Learning	Hard	3
MBAB 522	International Banking and Financial Services	Hard	3
MBAB	Elective I: Paper – 3	Soft	3
MBAB	Elective I: Paper – 4	Soft	3
MBAB	Elective II: Paper – 3	Soft	3
MBAB	Elective II: Paper – 4	Soft	3
MBAB 524	Final Project & Viva	Hard	6
<b>SEMESTER IV CREDITS</b>			<b>24</b>

**SEMESTER IV**  
**MBAB 521: 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**  
**MBAB 522: INTERNATIONAL BANKING AND FINANCIAL SERVICES**

**Hard Core: 3 Credit**

**Prerequisites:** Basic of Finance

**Learning Objectives:**

1. To understand the structure of Global Financial Systems
2. To learn about the Euro currency transactions & the role played by International FIs

**Learning Outcomes:**

1. To develop the skills to handle the Forex transactions
2. To develop the skills to deal with Cross-border transactions

**Methodology:** Exercise, Case studies, Assignments and mini projects

**Unit I: Global Business Environment**–World Economy–Developing and Developed Nations–Trade between countries–Trade Blocks and Regional Economic Cooperation– World Bank–IMF–WTO– Growths of Multinationals –Globalization. International Financial System–Euro Currency Markets– International Money Market–Euro Bonds– FRN– Medium Term notes. Global Capital Markets–Major Stock Markets– International Equity Trading– Instruments– Private placement- structure and Regulations of International Equity and Bond Markets– New Issue procedure– Linkages between Domestic, Eurobond Secondary Markets.

**Unit II: The Foreign Exchange Market:** Organisation–Spot Vs Forward Markets–Bid and ask rates– Interbank Quotations– International Market Quotations–Cross Rates–Merchant Rates–FEDAI Regulations–Role of RBI. **Exchange Rates**–Exchange rate systems–Gold Standard–Bretton Woods–Fixed Vs Floating Exchange Rate systems–Determinants of Exchange Rates–Exchange Controls. **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. **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 III: Euro currency Derivatives**– Currency Forward and Futures Markets– Currency Options– Option Combinations–Put –Call parity–Hedging–Trading on Volatility–Currency and Interest Rate Swaps–Swap valuation–Credit Risk of Swaps–Globally Traded Commodities–Commodity price Indicators–Futures price and cost of carry–Backwardation –Linkage between commodity Futures and Interest Rate Futures–Commodities in a Portfolio–Commodity swaps-option based commodity Hedging

**Unit IV: International Banking:** Origin and Evolution of International banking–Global trends as reasons for growth of international banking–financial activity following real-sector transactions– Regulatory, Tax and Supervisory explanations– Definitions– Growth and future prospects of International banking–Need for regulation of international banking in the current scenario. The World Bank Group– International Bank for Reconstruction and Development (IBRD)– IDA– IFC– MIGA– International Monetary Fund(IMF) in brief–Lending facilities– BIS–ADB.

**Unit V: International Banking Operations: Off-shore financial centres**– Rationale–Characteristics of offshore financial centres–Types of offshore centers–Benefit and reasons for growth–Factors of success– Tax Havens– Major Offshore Financial Centres– International Banking facilities–Special Economic Zones(SEZs)–Regulatory concerns– Origin and Growth of Correspondent banking– Challenges for correspondent banking–clearing house functions–payments and collections–credit services– foreign Exchange services–other facilities.

**Text Books and Reference Books:**

1. A.W. Mullineux & Victor Murinde. **Handbook of International Banking**. Edward Elgar
2. Cheol Eun & Bruce G. Resnick. (2012). *International Financial Management*, McGraw Hill
3. Indian Institute of Banking & Finance. *International Banking Operations*. Macmillan Publishers
4. Jane Hughes & Scott MacDonald. (2002). *International Banking: Text and Cases*. PI
5. Ian H Giddy, “Global Financial Markets”, AITBS Pub, Delhi 11 051.

**Open Resources:** [www.imf.com](http://www.imf.com), [www.rbi.org.in](http://www.rbi.org.in), [www.bis.com](http://www.bis.com)

**Tools/Software:** NA

**SEMESTER IV**  
**MBAB 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 phase-II.
- Presentations would be evaluated by the Committee of Internal Faculty
- The division of Marks for Phase-I and Phase-II components is 40% and 60% respectively
- Final Project Work must be in the inter-disciplinary area of Banking/Finance and IT.
- Students should be in regular contact with their Faculty guide(s) and submit a rough draft of the Report by the First week of April; Project work will be evaluated by two external examiners in a Public presentation.

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

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

**Division of Marks:**

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

<b>List of Softcore Courses for Second Semester</b>			
MBAF 441	Design Patterns	Soft	3
MBAF 442	Smart Banking Technologies	Soft	3
MBAF 443	Software Project Management	Soft	3
MBAF 444	Rural Banking and Microfinance	Soft	3
MBAF 445	Central Banking & Monetary Policy	Soft	3
MBAF 446	Mutual Fund Management and Services	Soft	3

**SOFTCORE II SEMESTER  
MBAB 441: DESIGN PATTERNS**

**Soft Core: 3 Credit**

**Prerequisites:** Knowledge in OO Concepts

**Learning Objectives**

1. To introduce the concept of Design Patterns
2. To introduce the various values of patterns

**Learning Outcomes**

1. To gain knowledge on principles and strategies of Design Pattern
2. To acquire the practical knowledge to develop software patterns

**Methodology:**

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

**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 – Applying 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 - Applying Singleton 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 – A Parting Thought – Banking Case Study

**Text Books and Reference Books:**

1. Smith, J. M. (2012). Elemental design patterns. Addison-Wesley.
2. Shalloway, A., & Trott, J. R. (2016). Design patterns explained: A new perspective on object-oriented design, 2/E. Pearson Education India.
3. Gamma, E., Helm, R, Johnson, R., Vlissides, J. (2015). Design patterns: elements of reusable object-oriented software Pearson India.
4. Freeman, E., Robson, E., Bates, B., & Sierra, K. (2016) Head First Design Patterns: A Brain-Friendly Guide," O'Reilly Media, Inc."
5. Freeman, E., Robson, E. (2020) Head First Design Patterns: Building Extensible and Maintainable Object-Oriented Software," O'Reilly Media, Inc."

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

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

**SOFTCORE II SEMESTER**  
**MBAB 442: SMART BANKING TECHNOLOGIES**

**Soft Core: 3 Credit**

**Prerequisites:** Knowledge in Banking Technology

**Learning Objectives:**

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

**Learning Outcomes:**

1. To gain knowledge on context aware computing and IoT
2. To acquire practical knowledge to apply internet of things in Banking Applications

**Methodology:**

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

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

**Unit II:RFID – Introduction – RFID system components** – Operating frequency – Close coupling smart cards – Proximity-coupling smart cards, Working of slotted Aloha – OSI layers and RFID, vicinity coupling smart cards, RFID security considerations – RFID Applications – Short range RFID applications, Long range RFID applications.

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

**Unit IV: Internet of Things** - Introduction to IoT Defining IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs- Design challenges, Development challenges, Security challenges, Other challenges - Home automation, Banking and Other Industry applications, Surveillance applications, Other IoT applications

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

**Text Books and Reference Books:**

1. Brenner, W., Zarnekow, R., & Wittig, H. (2012). Intelligent software agents: foundations and applications. Springer Science & Business Media.
2. Shepard, S. (2005). RFID: radio frequency identification. McGraw Hill Professional.
3. Loke, S. (2019). Context-aware pervasive systems: architectures for a new breed of applications. Routledge.
4. Hanes, D., Salgueiro, G., Grossetete, P., Barton, R., & Henry, J. (2017). IoT fundamentals: Networking technologies, protocols, and use cases for the internet of things. Cisco Press.
5. Chorafas, D. N. (2016). Enterprise architecture and new generation information systems. CRC Press.
6. Brown, D. (2006). RFID Implementation, McGraw Hill Osborne Media.

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

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

**SOFTCORE II SEMESTER  
MBAB 443: SOFTWARE PROJECT MANAGEMENT**

**Soft Core: 3 Credit**

**Prerequisites:** Basic knowledge of Software Design principles

**Learning objectives:**

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

**Learning outcome:**

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

**Methodology:**

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

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

**Unit II: Software Quality assurance** – Quality control and Quality assurance, cost and benefits of quality, Software quality assurance tools, Software Quality analyst’s functions. Software Configuration Management – Processes and activities. Risk Management– Processes and activities.

**Unit III: Project Schedule planning** - 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 check list.

**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 Books and Reference Books:**

1. Ramesh, Gopaldaswamy: “Managing Global Software Projects “, Tata McGraw Hill, 2001.
2. Neal Whitten: “ Managing Software Development Projects, Formula for Success”. John Wiley and sons, Inc, II edition, 1995
3. Humphrey, Watts: “Managing the software process “, Addison Wesley, 1986.
4. Pressman, Roger, “Software Engineering – A Practitioner’s approach”, McGraw Hill, 2001.

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

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

**SOFTCORE II SEMESTER**  
**MBAB 446: RURAL BANKING AND MICRO FINANCE**

**Soft Core 3 Credit**

**Prerequisites:** Basics of Banking Concepts.

**Course Objective**

1. To introduce and expose the key issues in rural banking
2. To introduce various Government initiatives for inclusive financial system

**Learning Outcomes:**

1. To gain knowledge on rural financing and development policy
2. To acquire practical knowledge on problems and prospects in rural banking.

**Methodology:**

Lecture, Discussion, Case studies, observations and presentation

**Unit I: Introduction:** Demographic features- Population- occupation- literacy, socio-economic development – indicators-health- nutrition and education, - urban migration- -Caste and power structure - rural social stratification- Economic life of rural people, share in National income- Trends in percapita income, rural money markets, rural indebtedness, rural poverty - main causes and methods of measuring rural poverty.

**Unit II: Agricultural Economy:** Agriculture Economy-Structure and characteristics of Indian agriculture- Role of agriculture in economic development-agriculture-industry linkages -constraints to agriculture development- Emerging issues in Indian Agriculture- Rural infrastructure; Transport, Power-Markets and other services

**Unit III: Rural Financing and Development Policy-** policies and programmes for rural farm and non-farm sectors. Economic reforms and its impact on rural economy- Regulation of Rural Financial Services; - NABARD, RBI- role, refinance support. Lead bank approach, State level and- District level Credit committees- subsidy-linked credit programmes of the Government- -Priority Sector Financing

**Unit IV: Micro Finance:** Genesis and evolution of microfinance- different models of microfinance operating in India; - Bank Linkage Programme (SBLP) as an innovative strategy of microfinance evolved in India - SME Finance; Definition of SME .Importance to Indian economy- Financing of SME- Revival of sick units; revival package- and implementation, Stressed assets under rehabilitation.

**Unit V: Problems and prospects in Rural Banking:** Problems of Rural branches of Commercial banks- transaction costs and risk costs- Technology based Financial Inclusion- Emerging trends in rural banking-financing poor as bankable opportunity- Micro Credit, Self- Help Groups / NGOs, linkages with banking, latest guidelines of GOI and RBI

**Text Books and Reference Books:**

1. Karmakar, K. G. Rural credit and self-help groups: micro-finance needs and concepts in India. Sage Publications India Pvt Ltd, 1999.
2. Harper, Malcolm. Profit for the poor: cases in micro-finance. Intermediate Technology Publications Ltd (ITP), 1998.
3. Robinson, Marguerite S. The microfinance revolution: sustainable finance for the poor. World Bank Publications, 2001.
4. De Aghion, Beatriz Armendariz, Beatriz Armendáriz, and Jonathan Morduch. The economics of microfinance. MIT press, 2007.
5. Sinha, Frances, Ajay Tankha, K. Raja Reddy, and Malcolm Harper. Microfinance self-help groups in India: living up to their promise?. Practical Action Publishing, 2009.

**Open Resources:** <https://www.rbi.org.in/>, <http://agriculture.gov.in/>

**Tools/Software:** NA

**SOFTCORE II SEMESTER**  
**MBAB 447: CENTRAL BANKING & MONETARY POLICY**  
**Soft Core 3 Credit**

**Prerequisites:** Basics of Economics & Banking

**Learning Objective**

1. To introduce the concepts on central banking and monetary policy
2. To introduce various functioning of the monetary Policy and the role of Central Banks in the Economy.

**Learning Outcomes:**

1. To gain knowledge in central banking and its importance in floating economy
2. To acquire knowledge and understanding of central banking operations

**Methodology:**

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

**Unit I: Introduction:** Understanding money- Concept-functions of money-kinds money of measurement-theories of money supply determination-savings- investments-role of debit card-credit card-plastic money-electronic money

**Unit II: Central Banking System:** RBI as Central Bank- structure-functions- working-reforms-current regulatory structure- reserve system- balance sheet; goals, targets, indicators

**Unit III: Monetary Theory:** Reserve system-money creation-money multiplier- money supply- The Level of Prices and the Value of Money- money supply- money demand, and monetary equilibrium-Quantity theory-inflation- classical theory of money-modern theory of money and income

**Unit IV: Central Banking and Monetary Policy-** Functions-goals-targets-indicators and instruments of monetary control-monetary management in an open economy-Tools of monetary policy- conduct of monetary policy- effect of monetary injection-current monetary policy of India.

**Unit V: Economics of Banking:** Understanding Interest Rates- Risk and Term Structure of Interest Rates- Interdependence of Markets and Interest Rates- Rational Expectations and Efficient Markets- Role of financial markets and institutions-problem of asymmetric information – adverse selection and moral hazard-financial crises.

**Text Books and Reference Books:**

1. Gans, Joshua, Robin Stone cash, Martin Byford, Gregory Mankiw, Stephen King, and Jan Libich. **Principles of economics.** Cengage AU, 2017.
2. F. S. Mishkin and S. G. Eakins, Financial Markets and Institutions, Pearson Education, 8th Edition, 2014.
3. M. Y. Khan, Indian Financial System, Tata McGraw Hill, Latest edition.
4. Mishkin, Frederic S., ed. Monetary policy strategy. Mit press, 2007.
5. Blinder, Alan S. Central banking in theory and practice. Mit press, 1999

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

**Tools/Software:** NA



**SOFTCORE II SEMESTER**  
**MBAB 446: MUTUAL FUND MANAGEMENT AND SERVICES**  
**Soft Core : 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.amfiindia.com](http://www.amfiindia.com)

**Tools/Software:** AMFI

<b>List of Softcore Courses for Third Semester</b>			
MBAF 531	Service Oriented Architecture	Soft	3
MBAF 532	Data Science and Big Data Analytics	Soft	3
MBAF 533	Digital Payment System	Soft	3
MBAF 534	Financial Modeling using spreadsheet	Soft	3
MBAF 535	Treasury and Fixed Income Security	Soft	3
MBAF 536	Legal aspects of Business and Banking	Soft	3

**SOFTCORE III SEMESTER**  
**MBAB 531: SERVICE ORIENTED ARCHITECTURE**

**Soft Core: 3 Credit**

**Prerequisites:** Basics of Computer Architecture

**Learning Objective:**

1. To introduce the concepts on SOA and ESB
2. To introduce various Practical aspects on SOA

**Learning Outcomes:**

1. To gain knowledge on SOA and ESB
2. To acquire practical knowledge to develop software systems using SOA

**Methodology:**

Lecture, Discussion, Case studies, observations, presentation Exercise, Mini project

**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 Books and Reference Books:**

1. Erl, T. (2014). Service-oriented architecture: concepts, technology, and design. Pearson Education India.
2. Shankar Kambhampaty (2018), Service - Oriented Architecture & Microservices Architecture: For Enterprise, Cloud, Big Data and Mobile, Wiley.
3. Erl, T. (2004). Service-Oriented Architecture: A Field Guide to Integrating XML and Web Services, Prentice Hall PTR, NJ, USA.
4. Krafzig, D., Banke, K., &Slama, D. (2005). Enterprise SOA: service-oriented architecture best practices. Prentice Hall Professional.
5. Erl, T. (2008). SOA principles of service design (the Prentice Hall service-oriented computing series from Thomas Erl). Prentice Hall PTR.

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

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

**SOFTCORE III SEMESTER**  
**MBAB 532: DATA SCIENCE AND BIG DATA ANALYTICS**

**Soft Core: 3 Credit**

**Prerequisites:** Statistics, Operating Systems, DBMS

**Learning Objectives:**

1. To provides practical foundation level training and effective participation in big data
2. Basic and advanced analytic methods and an introduction to big data analytics and tools
3. To gain knowledge on web personalization and web visualization of social networks

**Learning outcome:**

1. On successful completion of the course, the students will be able to Use current techniques, skills, and tools necessary for managing and doing analytics on big data.
2. Develop personalized web sites and visualization for Social networks

**Methodology:**

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

**Unit I - Introduction to Big Data Analytics**, Overview of Data Science: Big Data Overview, State of the Practice of Analytics, Big Data Analytics in Industry Verticals. Overview of Data Analytics Lifecycle, Discovery, Data Preparation, Model Planning, Model Building, Communicating Results and Findings, Operationalizing.

**Unit II - Advanced Analytics and Statistical Modeling for Big Data – Technology & Tools:** Learning various tools to Perform Analytics on Unstructured data using Map Reduce Programming paradigm. Use Hadoop, HDFS, HIVE, PIG and other products in the Hadoop ecosystem for unstructured data analytics. Effectively use advanced SQL functions and Green plum extensions for in-database analytics. Use MAD lib to solve analytics problems in-database. Apache Spark

**Unit III - Advanced Analytics and Statistical Modeling for Big Data – Theory and Methods:** Examining analytic needs and select an appropriate technique based on business objectives; initial hypotheses; and the data's structure and volume. Apply some of the more commonly used methods in Analytics solutions Explain the algorithms and the technical foundations for the commonly used methods. Explain the environment (use case) in which each technique can provide the most value. Use appropriate diagnostic methods to validate the models created. Use R and in-database analytical functions to fit, score and evaluate models.

**Unit IV - Using R for Initial Analysis of the Data:** Introduction to Using R Initial Exploration and Analysis of the Data Using R Basic Data Visualization Using R. How to use the R package as a tool to perform basic data analytics, reporting, and apply basic data visualization techniques to sample data. Apply basic analytics methods such as distributions, statistical tests and summary operations, and differentiate between results that are statistically sound vs. statistically significant. Identify a model for sample data and define the null and alternative hypothesis

**Unit V - Endgame - Operationalizing an Analytics Project:** The various tasks needed to operationalize an analytics project. Deliverables of an analytics lifecycle project. Framework for creating final presentations for sponsors and analysts. Evaluation of data visualization and ways to improve – Application of these concepts to a big data analytics problem in the final lab. Case Study: Social Network Mining and Analysis using Text Mining

**Text Books and Reference Books:**

1. **AnalyticsinPractice,Author:SoumendraMohanty,Publisher:TataMcgrawHillEducation(2011), ISBN-13:-9780061616161(TextBook)**
2. Agile Analytics: A Value-Driven Approach to Business Intelligence and Data Warehousing, Author:KeW.Collier Publisher: Pearson Education(2012),
3. Map Reduce Design Patterns, Author: Donald Miner, Publisher :O'Reilly(2012),ISBN-13:-9789350239810

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

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

**SOFTCORE III SEMESTER**  
**MBAB 533: DIGITAL PAYMENT SYSTEMS**

**Soft Core: 3 Credit**

**Prerequisites:** Basic Knowledge in Banking Operations and technology

**Learning Objectives**

1. To introduce concepts of Payments system and Models
2. To understand the technology involved in the Digital Payment system
3. To understand the different types of payment system.

**Learning Outcome:**

1. To understand and appreciate the concepts of Payments system and Models
2. To acquire required knowledge and demonstrate skills sets required for Payments system designing.

**Methodology:**

Exercise, Case studies, Assignments and mini projects

**Unit I: Payment System** – Background – Business Models – Technology Models - National Payments Corporation of India (NPCI) – Roles – Functions

**Unit II: High value Payments** - Automated clearing and settlement systems – Payment graphs. Real-time gross settlement: Fedwire. Check clearing. ATM networks. CHIPS, SWIFT, SFMS- Real Time Gross Settlement System (RTGS) - Securities Settlement System (SSS) -Electronic Clearing Service (ECS) – National Electronic Fund Transfer (NEFT) – Money Transfer Service Scheme (MTSS) - Electronic Bill Payment and Presentment

**Unit III: Retail Payments** - Automated Teller Machines (ATMs) - Electronic Funds Transfer - Immediate Payment Service (IMPS) - The Unified Payments Interface (UPI) - Bharat Bill Payment System (BBPS) – Card Payments - Mobile Payments - Aadhar Pay - UPI Payments - Bharat QR Code - Digital Wallets – Bank Wallets – Private Wallets - Business Models – Technology Models

**Unit IV: Digital Inclusion** - \*99# service - RuPay card - Aadhar Payment Systems - Aadhaar Payments Bridge (APB) - Aadhaar Enabled Payment System (AEPS) – Micro Payments - micro ATM – Other Digital Payment Systems -Electoral bond - Digital Currencies - Blockchain technology – Bitcoin

**Unit V: Other Developments** – Secured Payments – E-payment Security – AI and Machine Learning – Smart Payments – Future Payments Systems

**Text Book and Reference Books**

1. Digital Payments in India: Background, Trends and Opportunities, Jaspal Singh, New Century Publications, November 2019.
2. The PAYTECH Book: The Payment Technology Handbook for Investors, Entrepreneurs, and FinTech Visionaries, Susanne Chishti, Tony Craddock, Robert Courtneidge, Markos Zachariadis, Wiley, December 2019.
3. History, Evolution & Future of Mobile Payment System, Dr. Chitra Kiran, Notion Press, May 2020.
4. Designing Mobile Payment Experiences: Principles and Best Practices for Mobile Commerce, Skip Allums, Shroff/O'Reilly, June 2019.

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

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

**SOFTCORE III SEMESTER**  
**MBAB 534: FINANCIAL MODELLING USING SPREADSHEET**

**Soft Core: 3 Credit**

**Prerequisites:** Basic knowledge on Finance and Business Statistics

**Learning Objectives:**

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

**Learning outcome:**

1. To gain the knowledge to analyze and build Financial Models
2. To acquire the practical knowledge to build models for assess the financial positions of firms

**Methodology:**

Exercise, Case studies, Assignments and mini projects

**Unit I: Financial Models:** Introduction to modeling, introduction to spreadsheet, database functions in spread sheet, finance function in spreadsheet, creating dynamic models. Basic Financial Calculations – Financial Statement Analysis – Financial Ratios – Cash Flow Analysis - Financial Budget & other Budget Modeling – 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 – Modeling the Term Structure.

**Unit V: Statistical Models** Application of Statistical tools for Financial calculations and Model Building through Excel Add on.

**Text Books and Reference Books:**

1. **Simon Benninga, Financial Modeling, MIT Press**
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,

**Open Resources:** Companies Websites

**Tools/Software:** MS Excel

**SOFTCORE III SEMESTER**  
**MBAB 535: TREASURY AND FIXED INCOME SECURITIES**  
**Soft Core: 3 Credit**

**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 Outcomes:**

1. To acquire the knowledge related to Treasury and Debt instruments
2. To gain the practical knowledge to work in the treasury divisions of the banks.

**Methodology:**

Exercise, Case studies, Assignments and mini projects

**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 Books and Reference Books:**

1. **Frank J. Fabozzi, Bond Markets, Analysis and Strategies, Pearson, 8<sup>th</sup> Edition, 2012**
2. Reilly, Brown, Investment Analysis and Portfolio Management, CengageLearning, 8th Edition
3. Fixed-Income Securities. L. Martellini, P. Priaulet and S. Priaulet. John Wiley & Sons, Chichester
4. Website of National Stock Exchange,
5. Steven M Braggs —Treasury Management: The Practical Guide| Wiley 2010.

**Open Resources:** Research Papers, RBI Reports,RBI Data

**Tools/Software:** MS Excel

**SOFTCORE III SEMESTER**  
**MBAB 536: LEGAL ASPECTS OF BANKING**

**Hard Core: 3 Credits**

**Prerequisites:** Basic knowledge Banking and Business

**Learning Objective**

1. To provide the students with practical legal knowledge of banking laws and other business law
2. To provide knowledge on legal issues pertaining to business especially banking.

**Learning Outcome:**

1. To understand and appreciate the concepts of Business and Corporate Laws
2. To acquire required knowledge and demonstrate skills sets required legal process

**Methodology:**

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

**Unit I: Contract Act:** Introduction to Law- Fundamentals of Law-The Indian Contract Act-Nature of Contract-offer and Acceptance-Consideration-Capacity to contract-Free consent-Legality of Objects

**Unit II: Contract Act PART II:** Void agreements-Performance of contract-Discharge of contract- Breach of contract-Remedies –Quasi contracts-Indemnity-Guarantee-Bailment-Pledge -Contract- Indemnity and guarantee- Termination of Contracts- Bailment- Agency

**Unit III: Negotiable Instrument Act:** The Negotiable Instruments Act, Promissory Notes, Bills of Exchange and Cheques- Operations of Promissory notes, Bills of exchange and cheques (Demand, drafts, payment orders etc.) -Responsibility of paying-collecting banker 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 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 –Companies Act- SARFASI Act- The Transfer of Property Act - The Sale of Goods Act -Right to information Act

**Text Books and Reference Books:**

1. Pathak, Akhileshwar. Legal Aspects of Business. Tata McGraw-Hill Education, Latest
2. Legal and Regulatory Aspects of Banking. Indian Institute of Banking and Finance, Macmillan
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, Latest
5. Satish B Mathur. Business Law. Tata McGraw - Hill Education, Latest

**Open Resources:** <http://www.mca.gov.in/>, <https://www.sebi.gov.in/>

**Tools/Software:** NA



<b>List of Softcore Courses for Fourth Semester</b>			
MBAF 541	Natural Language Dialoguing and Chatbots	Soft	3
MBAF 542	Block Chain and Cryptography	Soft	3
MBAF 543	Information System Control and Audit	Soft	3
MBAF 544	Data Visualization and Reporting	Soft	3
MBAF 545	Cyber Security and IT Laws	Soft	3
MBAF 546	Risk Management in Banks	Soft	3
MBAF 547	Financial Derivatives	Soft	3
MBAF 548	Forex and Currency Derivatives	Soft	3

**SOFTCORE IV SEMESTER**  
**MBAB 541: NATURAL LANGUAGE DIALOGUING AND CHATBOTS**

**Soft Core: 3 Credit**

**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.

**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 McTeer, 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**  
**MBAB 542: BLOCK CHAIN AND CRYPTOGRAPHY**

**Soft Core 3 Credit**

**Prerequisites:** Computer Networks and security systems

**Learning Objectives:**

1. To introduce about Block Chain and its usages in projects
2. To introduce about Crypto currencies and implementation

**Learning Outcomes:**

1. To gain knowledge relating various block chain and cryptographic concepts
2. To acquire practical knowledge to develop a secure system using Block chain.

**Methodology:**

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

**Unit I: Block Chain - 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 - Smartcontracts and their potential Trust in Algorithms, - Integration with existing legal systems - OpenZeplin, OpenLaw- 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 Books 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,
4. Bitcoin, Ethereum, Litecoin, Zcash, Monero, Ripple, Dash, IOTA And Smart Contracts, Alan T. Norman, CreateSpace Independent Publishing Platform, 2017

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

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

**SOFTCORE IV SEMESTER**  
**MBAB 543: INFORMATION SYSTEMS CONTROL AND AUDIT**

**Soft Core 3 Credit**

**Prerequisites:** Basics of Information System

**Learning Objectives:**

1. This course focuses on the audit and control aspects of information systems.
2. This course emphasizes on 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, Exercise, Case studies, Assignments and mini projects

**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 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

**Text Books and Reference Books:**

1. **RonWeber, “Information System Control and Audit”, Prentice Hall, 2011. (Text book)**
2. Dube, D.P. and Gulati V.P., —Information System Audit and Assurance(Including Case Studies and Check lists from the Bank), Tata McGraw-Hill, 2<sup>nd</sup> Edition, 2008.
3. Frederick Gallegos, DanielP. Manson, Sandra Sen ft,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-Schönberger,V. and K. Cukier. Big Data. First Mariner Books

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

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

**SOFTCORE IV SEMESTER**  
**MBAB 544: DATA VISUALIZATION AND REPORTING**

**Soft Core 3 Credit**

**Prerequisites:**

Data warehousing and Data Mining

**Learning Objectives:**

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

**Learning 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 Books and Reference Books:**

1. Stephen Few, "Now you see it: Simple Visualization techniques for quantitative analysis", Analytics
2. Stephen Few, "Information dashboard design: The effective visual communication of data", O'Reilly,
3. Edward R. Tufte, "The visual display of quantitative information", Second Edition, Graphics Press,
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,

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

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

**SOFTCORE IV SEMESTER**  
**MBAB 545: CYBER CRIMES AND IT LAWS**

**Soft Core: 3 Credit**

**Prerequisites:** Basics of IT Laws

**Learning Objective:**

1. To understand the importance of cyber security in banks
2. To understand the basics of cyber forensics, investigation and cyber security

**Learning Outcomes:**

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, role plays, problem and games

**Unit I: Fundamentals of Criminal Behaviour and cyber crime:** Nature and fundamental principles of crime – Theories of Criminal Behaviour - Cyber crimes – definition, scope and growing dimensions – Cyber Criminals and characteristic- Nature and Types of cyber crimes - Cyber Crime Techniques; Computer insecurity and computer attacks; Internet Crimes and Internet Frauds; Computer Hacking and Hackers; Social Engineering; Digital signatures and forgery.

**Unit II: Emerging Banking Environment and Vulnerability:** Development in Banking Industry and Banking operations – Payment and Settlement; E-commerce, Online Banking and Crimes; Banking Software crimes, Computer Hacking – browsing, password cracking, session hijacking, man in the middle attack, Website hacking, DOS, DDoS, Source code theft - On-line banking crimes and Frauds - Spamming – Phishing - identity theft, cyber money laundering, intercepting electronic communication, Accounting frauds, forgery and counterfeiting; Vulnerability in Banks - Bank Failure and its impact on the system.

**Unit III: Cyber Forensics and Investigation:** Introduction to Cyber Forensic Investigation, Investigation Tools, e-Discovery, Digital Evidence Collection, Evidence Preservation, E-Mail Investigation, E-Mail Tracking, IP Tracking, E-Mail Recovery, Encryption and Decryption methods, Search and Seizure of Computers, Recovering deleted evidences, Password Cracking.

**Unit IV: Cyber Security in Banks:** Introduction to Cyber Security, Implementing Hardware Based Security, Software Based Firewalls, Security Standards and Best Practices, Assessing Threat Levels, Penetration Testing Security Controls – Preventive, Detective and Corrective controls; Forming an Incident Response Team, Reporting Cyber crime, Operating System Attacks, Application Attacks, Cryptanalytic Attacks; Reverse Engineering & Cracking Techniques - Cryptography- Encryption- Public Key Infrastructure (PKI), Key Management - IS Security and IS Audit - Global initiatives and development.

**Unit V: Cyber Crimes and Legislative Framework:** Salient features of IT Act, 2000 and latest amendments – offenses and penalties – Amendments to Indian Evidence Act, 1872 - Amendments to Indian Penal Code, 1860 - Amendments to Bankers Book of Evidence Act, 1891 - Amendments to RBI Act, 1934 - Civil and criminal liability of cyber crime - Challenges of legislative, law enforcement and justice system – Indian and International Initiatives.

**Books and References:**

1. Verma Amita, **Cyber Crimes and Law**, Central Law Publications, Allahabad, 2009.
3. Dasgupta .M. , **Cyber Crimes in India – A Comparative Study**, Eastern Law House, Kolkata, 2009.
4. Barkha and Mohan Rama.U., **Cyber Law and Crimes – IT Act 2000 and Computer Crime Analysis**, Asia Law House, Hyderabad, 2009.
5. Eoghan Casey, **Digital Evidence & Computer Crime**, Forensic Digital Science, Computers

**Open Resources:** <https://www.cysi.in/>, <https://www.meity.gov.in/content/cyber-laws>

**Tools/Software:** NA

## SOFTCORE IV SEMESTER

## MBAB 546: RISK MANAGEMENT IN BANKS

Soft Core 3 Credit

**Prerequisites:** Basics of Banking**Learning Objectives:**

1. To understand the basic concept of risk management in banks
2. To expose the various types of risk faced by banks

**Learning Outcomes:**

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:**

Exercise, Case studies, Assignments and mini projects

**Unit I: Introduction and Overview:** Risk definition - BIS – Basel Committee – Basel I, II and III norms; Risk Process- Risk Organization - Key risks-Credit risk, market risk, operational risk, liquidity risk, legal risk, interest rate risk and currency risk – Concept of ALM for Banks.

**Unit II: Credit Risk:** Definition - - Framework for risk management - RBI guidelines for risk management - Risk rating and risk pricing - Methods for estimating capital requirements -Credit risk - standardized approach and advanced approach - Credit rating /scoring - Credit Bureaus - Stress test and sensitivity analysis - Internal Capital Adequacy Assessment Process (ICAAP) - Structured products.

**Unit III: Operational Risk:** Definition - RBI guidelines for Operational risk - Types of operational risk - Causes for operational risk - Sound Principles of Operational Risk Management (SPOR) - Identification, measurement, control / mitigation of operational risks; Organizational set up and Policy requirements; Strategic approach and key responsibilities of ORM; Capital allocation for operational risk, methodology and qualifying criteria for banks for the adoption of the methods; Computation of capital charge for operational risk.

**Unit IV: Market risk:** Definition - Liquidity risk - Interest rate risk - foreign exchange risk - ALM organization - ALCO - Simulation, Gap, Duration analysis, Linear and other statistical methods of control; Price risk (Equity) - Commodity risk - Treatment of market risk under Basel- Standardized duration method- Internal measurement approach – VaR.

**Unit V: Risk Measurement, Control and Risk management:** Risk Calculation - Risk exposure analysis - Risk management / mitigation policy - Risk immunization policy strategy for fixing exposure limits - Risk management policy and procedure - Risk adjusted return on capital - Prudential norms – Income Recognition and Asset Classification (IRAC) norms -Capital adequacy norms - 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. MooradChoudhry, 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, Amp, Finance(IIBF), Risk Management , Macmillan Publishers India, 2010
5. Risk Measurement Models to Capital Allocation Policies, Wiley, IIBF Material.

**Open Resources:** <https://www.rbi.org.in/>**Tools/Software:** MS Excel, R

**SOFTCORE IV SEMESTER  
MBAB 547: FINANCIAL DERIVATIVES**

**Soft Core: 3 Credit**

**Prerequisites:** Basics of derivatives

**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 Outcomes:**

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

**Methodology:**

Exercise, Case studies, Assignments 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 Books and Reference Books:**

1. Hull J C, Options, Futures and Other Derivatives, Prentice Hall, NJ 2002 (Text Book)
2. Baye and Jansen, —Money, Banking and Financial Markets- An economics approach, AITBS Publishers & Distributors, Delhi, 1996
3. Marshal JF, —Futures and Options Contracting: Theory and Practice‘ south Western Publishing Company, NY 1991
4. Kolb R W, Futures, Options and Swaps, Blackwell Publishers, NY 2002

**Open Resources:** <https://www.sebi.gov.in/>, NSE

**Tools/Software:** MS Excel, E-Views



**SOFTCORE IV SEMESTER  
MBAB 548: 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

**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:** Organisation – 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
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

**OpenResources:** [www.rbi.org.in](http://www.rbi.org.in), [www.fedail.com](http://www.fedail.com), [www.useindia.com](http://www.useindia.com), [www.mcx.sx.com](http://www.mcx.sx.com), [www.nseindia.com](http://www.nseindia.com), [www.easy.forex.com](http://www.easy.forex.com), [www.indiaforex.com](http://www.indiaforex.com), [www.nism.ac.in](http://www.nism.ac.in)

**Tools/Software:** Virtual Trading Open software