

MBA: BANKING TECHNOLOGY DEGREE PROGRAMME

CURRICULUM & COURSE STRUCTURE

[2024- 25 onwards]

PONDICHERRY UNIVERSITY
SCHOOL OF MANAGEMENT
DEPARTMENT OF BANKING TECHNOLOGY

Department of Banking Technology emerged as an innovative interdisciplinary department in the academic year 2005-06 to offer a specialized Post Graduate Management Programme in Banking Technology (MBA Banking Technology) by blending Banking, Finance and Technology. The UGC had sanctioned this Programme under its Innovative/Inter-disciplinary scheme during 10th plan. In order to expand its academic outreach, the Department has started the inter-disciplinary research programme (Ph.D) since 2009-2010 in the area of Management and Computer Science & Engineering. Recently, in the year 2020-21, launched another specialized Post Graduate Management Programme in Financial Technology (MBA Financial Technology), finely combining Finance and Technology.

The department constantly interacts with the industry to enhance the student output and employability skills with a view to effectively cater to their human resources demands of the BFSI industry. To take lead in the implementation of NEP 2020, it proposes to offer a new Five Year Integrated B.Tech. (CSBS) MBA Programme in Banking Technology and Financial Technology.

DESCRIPTION OF COURSES OFFERED BY THE DEPARTMENT

1. **Course Title:**
MBA in Banking Technology

 Objective:
To develop future managers with specialized knowledge and skills in Banking, Finance and Systems Domain besides a strong technology understanding to meet the growing technological challenges faced by the Banking and Financial services sectors.
2. **Course Title:**
MBA in Financial Technology

 Objective:
To develop manpower with know-how and know-why skills required to transform and integrate management with technology for the financial services industry.
3. **Course Title:**
Five-year Integrated B.Tech. MBA (CSBS)

 Objective:
To integrate, develop and shape future industry leaders with a strong technology inbuilt to meet the growing challenges and complexities in Banking and Finance sectors
4. **Course Title:**
Doctoral Programme
Ph.D in Management (Banking Technology)
Ph.D in Computer Science and Engineering (Banking Technology)

OBJECTIVE:

The Department of Banking Technology offers Doctoral Programme in an interdisciplinary area of Management and Computer Science & Engineering, focusing on technology and application of technology in the field of Banking, Financial Services and Insurance (BFSI) Sector and other emerging sectors.

HIGHLIGHTS OF ALL THE COURSES

1. Industry Integrated Curriculum
2. Strong Industry Interface and Placement
3. Internship in Public Sector Banks
4. Soft skill Training by Professionals
5. Banking Technology Training at IDRBT
6. Forex and Stock Trading Training
7. Bloomberg and CMIE Database based courses
8. Case Study based pedagogy
9. Swayam / NPTEL credits

INTERNSHIPS & PROJECT WORK:

To understand the real time business environment of an organization Banking Internship (60 days) at various Public sector banks like Indian Bank, SBI, Canara Bank and Indian Overseas Bank to familiarize with Branch banking operations.

In Final Project work (6 months) the students develop application in Information Technology and Finance area by applying theoretical understanding of concepts gained during the course of the study and submit the report.

INDUSTRIAL VISITS:

The Department organizes industrial visits to financial institutions like, RBI, IDRBT SEBI, Stock Exchanges (NSE, BSE) etc., and besides various other reputed IT companies.

PLACEMENTS:

The Department facilitates all the required assistance for campus placement activities. The management programmes offered by the Department regularly attracts companies from IT, Banking and Financial Sectors. The companies include TCS, Accenture, Oracle, Zafin Labs, IDP, Groww, Bank of America, Royal Bank of Scotland, HDFC Bank, City Union Bank, ICICI Bank, Axis Bank, Catholic Syrian Bank, South Indian Bank, Karur Vysya Bank, Federal Bank, IndusInd Bank, Bandhan Bank; small banks like, Suryoday, ESAF, Jana Banks; NBFCs like, Chola mandalam Finance, TVS Finance, etc.

MOUs:

The Department has MoUs with leading institutes like, IDRBT, NSE, ESCI & IIBF that facilitates additional certifications in Currency Derivatives, Financial Markets, Mutual Funds and Securities Market, Information Security Audit, Back Office Operation, Social Media Data Analytics and Bloomberg Market Concepts.

INFRASTRUCTURE FACILITIES:

The Department has well-equipped class rooms and computer lab with the necessary software to cater to the learning process of students. The Department subscribes to the Corporate Databases and provides access to on-line International Journals.

ENTRANCE EXAMINATION AND ADMISSION:

PG Programmes:

The Entrance Exam will be conducted by NTA (National Testing Agency) through online CUET PG. The candidates have to apply online for MBA- Banking Technology / MBA- Financial Technology Programs and the selection will be done as per the merit order and other statutory regulations.

Ph.D. Programme:

The admission for the research programme is made through the University Entrance Examination conducted separately for Management category and Computer Science and Engineering Category, at the beginning of academic year. The examination consists of 100 objective type questions drawn from the domain specific subjects at Post Graduate level. The final selection of the students is made by combining the entrance examination scores and performance scores on the basis of the presentation before the Admission Committee on the proposed area of research. JRF candidates are admitted twice during the academic year under the entrance examination exempted category.

Admission Requirements

Course Code	Title of P.G. course	Discipline	Intake	Eligibility criteria for admission	Entrance Examination
381	MBA	Banking Technology	91	1. Any B. E / B.Tech Degree, 2. B.Sc. Computer Science/ IT or equivalent, BCA 3. B.Voc IT or equivalent with a minimum of 50% of marks in the qualifying degree.	1. CUET (PG) – COQP12
412	MBA	Financial Technology	50	Bachelor's Degree in Engineering/ Technology/ Computer Science/ Computer Applications/ Commerce/ Economics/ Mathematics/ Statistics/ Business Administration / equivalent with a minimum of 50% of marks in the qualifying degree.	
	Integrated PG Program B.Tech MBA	Computer Science and Business System	60	Passed 10+2 examination with minimum of 50% and Mathematics / Business Mathematics as one of the subjects.	

146	Ph.D (Inter-disciplinary area of Management and Computer Science & Engineering)	1. Management (Banking Technology)	22	1. Should have secured 55% of marks or equivalent CGPA in qualifying Examination in any of the Degrees mentioned below: 1. Master's Degree / equivalent in Management/ Commerce with specialization in Banking / Finance 2. PGDM or equivalent Management Degree with Banking / Finance / Systems Specialization 3. Professional Degrees like CA, ICWAI, ACS.	2. Candidates under section (a), (b), (c) should write Management Entrance exam.
		2. Computer Science and Engineering (Banking Technology)	28	4. M.E/ M.Tech (CSE/IT) or equivalent degree from a UGC recognized University	3. Candidates under section (d) should write Computer Science and Engineering exam.

CHOICE BASED CREDIT SYSTEM (CBCS)

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

ATTENDANCE

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

GRADING

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

WEIGHTAGE OF MARKS

For Theory courses:

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

For Practical courses:

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

A student is declared to have passed a given course only when the student secures a minimum of 40% marks in the end-semester examination and an aggregate of 50% marks (both Internal and End-Semester Examination). There are 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 and Revaluation of End Semester Written Examination:

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

Question Paper Pattern:

The question paper pattern for each of the subjects for End-Semester Written Examination (**For 100 Marks**) shall be as follows

PART A

Consist of 6 or 7 short answer questions each carrying five (05) marks out of which four (4) is to be answered (**4*5=20 marks**)

PART B

Five questions are to be answered out of seven each carrying six (12) marks (**5*12=60 marks**)

PART C

A compulsory question consisting a case study/ problem in the relevant subject (**1*20=20 marks**)

INTERNSHIP:

Banking Internship is to be carried out for 45 days in a Bank Branch/RO/HO. Students should attend activities assigned by the Bank in order to understand the day-to-day operations and activities. A minimum of 90% attendance is Mandatory. Student has to submit Internship Report(s) duly certified by the respective authorities in the bank. A viva examination will be conducted to evaluate the knowledge and skills learned during the internship by students. Evaluation of Internship is based on Attendance, Feedback from the banker, Internship Report(s) and Viva examination.

FINAL PROJECT:

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

FACULTY

Professor & Head

V. Mariappan, Ph.D.

Specialization: Banking Operations, Strategic Management, Cyber Crimes and IT Laws.

Professors

V. Prasanna Venkatesan, Ph.D.

Specialization: Software Architecture, Object-Oriented Systems, Agile Software Development, Programming Languages, Banking Technology Management.

S. Sudalaimuthu, Ph.D.

Specialization: Accounting, Corporate Finance and System.

S. Balakrishnan, Ph.D.

Specialization: Fixed Income Securities, Security Analysis & Portfolio Management, Treasury and Derivatives Management.

S. Janakiraman, Ph.D.

Specialization: Data Analytics, Machine Learning, Networks & Security, and Information Systems Audit.

Associate Professors

C.Punitha Devi, Ph.D.

Specialization: Software Engineering, Service Oriented Architecture, Data Science, Distributed Computing and Business Intelligence.

S.Prabu, Ph.D. PDF

Specialization: Blockchain and Cryptocurrency, Geo- Spatial Information Science and Engineering.

K.Usha, Ph.D.

Specialization: Blockchain Technologies, Biometrics & Cybersecurity, Data Science and Big Data Analytics, Software Design and Development.

Assistant Professors:

C. P. Abdul Gafoor, Ph.D.

Specialization: Banking and Economics.

A. Suganthi, Ph.D

Specialization: Information Security, Object-Oriented Systems, Project Management.

S.Geetha, Ph.D.

Specialization: Information and Cyber Security, Smart Systems, Blockchain Technology, Agile Methodologies and Design Thinking

G.Divya Lakshmi, Ph.D.

Specialization: Human Resource Management, Foreign Trade, International Finance and Behavioral Finance

K.S.Sekhara Rao, Ph.D.

Specialization: Accounting and Finance, Strategic financial management, Treasury management, Fixed Income Securities and Forex markets

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- ❖ Graduates will procure technical and managerial skills for solving contemporary business problems.
- ❖ Graduates will design and develop innovative decision-making systems to solve business problems by applying engineering principles and business strategies
- ❖ Equip graduates with the capability to design, implement and test computational approaches to develop solutions for business problems
- ❖ Improving independent learning skills can aid in successfully pursuing higher studies and engaging in innovative research.
- ❖ Inculcate professional ethics and work with commitment for the progress of society.

PROGRAMME OUTCOMES (POs)

- ❖ Apply technical and managerial skills to address the challenges and issues in businesses.
- ❖ Design and develop innovative solutions for digital transformations in Banking, Fintech and Business
- ❖ Excel as critical thinkers and effective leaders
- ❖ Analyze the multi-dimensional business problems and provide data driven decisions.
- ❖ Ability to engage in independent and lifelong learning in the broadest context of technological change

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- ❖ The ability to acquire and apply extensive technical knowledge on FinTech, BFSI, etc.
- ❖ The ability to identify, develop, design necessary quality agile software products which will assist Banking and FinTech firm's needs.
- ❖ The ability to sense changes in BFSI and FinTech environments and to provide technological solutions.

REVISED COURSE STRUCTURE [2024-2025 ONWARDS]

CODE	COURSE	COURSE TYPE	CREDIT
NON-CREDIT BRIDGE COURSE			
MBAB 301	Basics of Business Environment	Hard - Non-IT	Non credit
MBAB 302	Basics of Computer Programming	Hard - IT	Non credit
MBAB 303	Basics of Economics	Hard - Non-IT	Non credit
MBAB 304	Basics of Problem-Solving Techniques	Hard - IT	Non credit
SEMESTER I			
MBAB 411	Management Concepts & Organizational Behavior	Hard	3
MBAB 412	Quantitative Techniques for Management	Hard	4
MBAB 413	Accounting and Finance for Bankers	Hard	3
MBAB 414	Financial System and Banking Practices in India	Hard	3
MBAB 415	Marketing of Financial Services	Hard	3
MBAB 416	Agile Software Development	Hard	3
MBAB 417	Data Centre Management and Cloud Computing	Hard	3
MBAB 418	Business Communication Lab for Managers	Hard	2
MBAB 419	Python Programming Lab	Hard	2
SEMESTER I CREDITS			26

SEMESTER II			
MBAB 421	Banking Operations and Management	Hard	3
MBAB 422	Strategic Financial Management	Hard	3
MBAB 423	Security Analysis and Portfolio Management	Hard	3
MBAB 424	Machine Learning	Hard	3
MBAB 425	Banking Technology Management	Hard	3
MBAB 426	IT Infrastructure Management for Banks	Hard	3
MBAB 427	Banking Technology Lab using Agile Methodology	Hard	2
MBAB 428	Financial Data Visualization Lab	Hard	2
MBAB 4XX	Elective 1: Paper – 1	Soft	3
MBAB 4XX	Elective 2: Paper – 1	Soft	3
SEMESTER II CREDITS			28
SEMESTER III			
MBAB 511	Legal Aspects of Business and Banking	Hard	3
MBAB 512	International Banking and Financial Services	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	Personal Finance and Wealth Management Lab	Hard	2
MBAB 518	Project - Phase I	Hard	2
MBAB 5XX	Elective I: Paper – 2	Soft	3
MBAB 5XX	Elective II: Paper – 2	Soft	3
MBAB 5XX	Elective III: Paper – 3	Soft	3
MBAB 519	Industrial Visit	Non-Credit	-
SEMESTER III CREDITS			30
SEMESTER IV			
MBAB 5XX	Elective I: Paper – 4	Soft	3
MBAB 5XX	Elective II: Paper – 3	Soft	3
MBAB 5XX	Elective II: Paper – 4	Soft	3
MBAB 521	Internship	Soft	3
MBAB 522	Project - Phase II & Viva	Hard	6
SEMESTER IV CREDITS			18
TOTAL CREDITS			102
LIST OF SOFTCORE COURSES			
List of Softcore courses – IT Stream			
MBAB X31	Design Patterns	Soft	3
MBAB X32	Smart Banking Technologies	Soft	3
MBAB X33	Software Project Management	Soft	3
MBAB X34	Service Oriented Architecture	Soft	3
MBAB X35	Data Science Using R	Soft	3

MBAB X36	Big Data Analytics	Soft	3
MBAB X37	Natural language Understanding and Chatbots	Soft	3
MBAB X38	Blockchain Technology	Soft	3
MBAB X39	Information Systems Control and Audit	Soft	3
MBAB X40	Data Visualization and Reporting	Soft	3
MBAB X41	Robotic Process Automation	Soft	3
MBAB X42	UX Design	Soft	3
List of Softcore courses – Finance Stream			
MBAB X43	Retail Banking	Soft	3
MBAB X44	Central Banking & Policy Development	Soft	3
MBAB X45	Corporate Restructuring	Soft	3
MBAB X46	Human Resource Management	Soft	3
MBAB X47	Merchant Banking and Financial Services	Soft	3
MBAB X48	Entrepreneurship and Start-ups	Soft	3
MBAB X49	Cyber Crimes and IT Laws	Soft	3
MBAB X50	Risk Management in Banks	Soft	3
MBAB X51	Financial Modelling	Soft	3
MBAB X52	Forex and Currency Derivatives	Soft	3
MBAB X53	Prudential Management for Banker	Soft	3
MBAB X54	Sustainable Finance	Soft	3

BRIDGE COURSE – NON-CREDIT

NON-CREDIT BRIDGE COURSE			
MBAB 301	Basics of Business Environment	Hard - Non-IT	Non credit
MBAB 302	Basics of Computer Programming	Hard - IT	Non credit
MBAB 303	Basics of Economics	Hard - Non-IT	Non credit
MBAB 304	Basics of Problem-Solving Techniques	Hard - IT	Non credit

BRIDGE COURSE
MBAB 301: BASICS OF BUSINESS ENVIRONMENT

Hard Core Non-Credit

Course Objectives

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

Course Outcome:

1. Understand and appreciate the concepts of Business and its environment
2. Acquire practical knowledge and understanding various policies and institutions

Methodology:

Lecture, Discussion and presentation

Topics to be covered:

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

Text and Reference books:

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

BRIDGE COURSE
MBAF 302: BASICS OF COMPUTER PROGRAMMING

Hard Core Non-Credit

Course Objectives

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

Course Outcome:

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

Methodology:

Lecture, assignments, presentation and hands-on practice

Topics to be covered:

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

Text and Reference books:

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

BRIDGE COURSE
MBAB 303: BASICS OF ECONOMICS

Hard Core Non-Credit

Course Objectives

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

Course Outcome:

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

Methodology:

Lecture, Discussion and presentation

Topics to be covered:

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

Text and Reference Books:

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

BRIDGE COURSE

MBAB 304: BASICS OF PROBLEM-SOLVING TECHNIQUES

Hard Core Non-Credit

Course Objectives:

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

Course Outcome:

1. Explain the basic computational thinking and problem solving.
2. Describe the concepts of array, merging, sorting & searching.

Topics to be covered:

Basics of Problem Solving:

Computational Thinking-Logic-Solving Problems-Pseudocode & Flow Chart - Algorithms Exchanging - Counting – Summing - Factorial Computation – Fibonacci Sequence - Reversing the Digit-Base Conversion - Character to number conversion. Factoring Methods: Finding Square Root - Greatest Common Divisor - Prime Number - Prime Factor - Pseudo Random Number - Raising to Large Power - Computing nth Fibonacci number.

Array Techniques:

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

Text processing:

Keyword Searching - Text Line Adjustment - Linear Pattern Search - Sub Linear Pattern Search.

Recursion:

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

Text and Reference Books:

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

SEMESTER I

SEMESTER I			
MBAB 411	Management Concepts & Organizational Behaviour	Hard	3
MBAB 412	Quantitative Techniques for Management	Hard	4
MBAB 413	Accounting and Finance for Bankers	Hard	3
MBAB 414	Financial System and Banking Practices in India	Hard	3
MBAB 415	Marketing of Financial Services	Hard	3
MBAB 416	Agile Software Development	Hard	3
MBAB 417	Data Centre Management and Cloud Computing	Hard	3
MBAB 418	Business Communication Lab for Managers	Hard	2
MBAB 419	Python Programming Lab	Hard	2
SEMESTER I CREDITS			26

SEMESTER I
MBAB 411: MANAGEMENT CONCEPTS & ORGANIZATIONAL BEHAVIOUR
Hard Core: 3 Credits

Course Objectives:

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

Course Outcomes:

1. Understand and appreciate the concepts of management and organizational behavior
2. 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. Group Dynamics-Characteristics-Stages-Types.

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 and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	2	3	3	2	1	1	2
C02	3	2	3	3	2	1	1	2
Avg	3	2	3	3	2	1	1	2

SEMESTER I
MBAB 412: QUANTITATIVE TECHNIQUES FOR MANAGEMENT
Hard Core: 4 Credit

Course Objectives

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

Course Outcomes:

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

Methodology:

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

Unit I: Probability, Sampling and Probability Distributions

Probability, Sampling and Testing of Hypothesis – Theories of Probability– Probability distribution– Binomial –Normal distribution– Relationship between binomial and normal distributions

Unit II: Statistical Inference

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

Unit III: Correlation and Regression

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 IV: Linear Programming and Assignment Problems

Basics of LP–Fields of application– Minimization and Maximization– Graphic solution– Simplex Method–Degeneracy– Non-feasible solution–Unbounded solution–Problem Dual; Assignment formulation–areas of application– Balanced Minimization and unbalanced– Maximization Problems

Unit V: 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.

Text and Reference Books:

1. Levin & Rubin, Statistics for Management, Prentice Hall.
2. Gupta, S P., Statistical Method, Sultan Chand, NewDelhi
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,

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	2	2	3	3	3	3	2
C02	2	3	2	3	3	3	2	2
Avg	2.5	2.5	2	3	3	3	2.5	2

SEMESTER I
MBAB 413: ACCOUNTING AND FINANCE FOR BANKERS

Hard Core: 3 Credit

Course Objectives

1. To familiarize basic concept of Accounting and Finance
2. To facilitate the application of financial statement analysis techniques and tools techniques for various managerial decision making.

Course Outcomes:

1. Understand the preparation of financial statements
2. Apply the techniques and tools used for financial statement analysis for various managerial decisions

Methodology:

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

Unit I: Basics of Accounting

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 - Depreciation and methods of Depreciation.

Unit II: Financial Statement

Preparation of final accounts of an Corporate and Banking companies – Classification of Banking Company Income, Expenditure, Assets and Liabilities – NPA and provision for NPA – Concept of Financial statements - Analysis of financial statements- Tools and Techniques of Financial Statement Analysis – Preparation of Comparative & Common size statements and Trend analysis.

Unit III: Financial Statement Analysis

Identification of KPI's - Ratio analysis- meaning and various types of ratios - Profitability ratios- Liquidity ratios- Solvency ratios- Turnover ratios- Overall profitability & Return Ratios - DuPont control charts- KPI's of Banking Companies – Various profitability and Performance Ratios of an Banking Companies – Application of CAMELS model.

Unit IV: Cash Flow Analysis

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

Unit V: Marginal Costing Analysis

Meaning of Cost – Types of Cost – methods of costing – Techniques of costing – Absorption costing and preparation of cost sheet - Marginal costing concepts – Preparation of Marginal cost sheet – Profit-volume Ratio – Break-even analysis – Margin of Safety – other marginal cost equations - Managerial applications of marginal costing techniques.

Text Reference Books:

1. Jain S P and K L Narang, Management Accounting, Kalyani Publishers
2. Maheswary S N, Management Accounting, Sultan Chand & Sons
3. Martin S. Fridson, Fernando Alvarez, Financial Statement Analysis: A Practitioner's Guide, Wiley.
4. Gupta R L and Radhaswami M, Advance Accounts, Vol., 1, Sultan Chand & Sons.
5. Jain S P and K L Narang, Cost Accounts, Kalyani Publishers

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	2	1	2	2	2	3
C02	3	3	3	3	3	3	3	3
Avg	3	3	2.5	2	2.5	2.5	2.5	3

SEMESTER I
MBAB 414: FINANCIAL SYSTEM AND BANKING PRACTICES IN INDIA

Hard Core: 3 Credit

Course Objectives

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

Course Outcomes:

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

Methodology:

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

Unit I: Introduction:

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

Unit II: Capital Markets and Instruments:

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

Unit III: Indian Banking System:

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

Unit IV: Retail Banking:

Functions of Banks- Corporate Vs Retail banking - Deposits and Loans - Account Opening and types of customers – Banker customer relationship - KYC Procedures - Major Developments - Financial Inclusion and SHGs – Financial Innovations - Factoring, Securitization, bancassurance, Consortium Financing – Role of technology and its impact on retail banking.

Unit V: Regulatory Environment for banks and financial institutions:

Central Banking Authority and Credit control - RBI – SEBI, IRDA and NABARD. – Regulatory provisions governing banks - RBI Act, 1934 – FEMA 1999, Banking Regulations Act 1949 – Bankers Book of Evidence Act 1879 – PMLA Act 2002 – IT Act 2000.

Text Book and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	2	2	1	3	2	3
C02	3	3	2	2	1	3	2	3
Avg	3	3	2	2	1	3	2	3

SEMESTER I
MBAB 415: MARKETING OF FINANCIAL SERVICES
Hard Core: 3 Credit

Course Objectives:

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

Course Outcomes:

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

Methodology:

Lecture, Discussion, Case studies, and Assignments

Unit I: Financial Services:

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

Unit II: Marketing of Financial Services:

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

Unit III: Branding in Financial Services Sector:

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

Unit IV: Marketing Strategies of Financial Institutions:

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

Unit V: Customer Satisfaction and Service Quality:

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

Text and Reference books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	1	1	3	3	2	1	2
C02	2	2	2	3	3	3	1	2
Avg	2	1.5	1.5	3	3	2.5	1	2

SEMESTER I
MBAB 416: AGILE SOFTWARE DEVELOPMENT

Hard Core: 3 Credit

Course Objectives:

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

Course Outcomes:

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

Methodology:

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

Unit I: Systems Development Life Cycle:

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

Unit II: Object-Oriented Analysis:

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

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

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

Unit IV: Agile and Its Significance:

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

Unit V: Agile Methodologies:

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

Text and Reference Books

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	2	2	3	3	3	3	2
C02	2	3	2	3	3	3	2	2
Avg	2.5	2.5	2	3	3	3	2.5	2

SEMESTER I
MBAB 417: DATA CENTRE MANAGEMENT AND CLOUD COMPUTING
Hard Core: 3 Credit

Course Objectives

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

Course Outcomes:

1. Gain knowledge in data center management.
2. 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 and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	2	2	2	2	3	3	2
C02	3	3	2	3	3	3	3	3
Avg	3	2.5	2	2.5	2.5	3	3	2.5

SEMESTER I**MBAB 418: BUSINESS COMMUNICATION LAB FOR MANAGERS****HardCore: 3 Credit****Course Objectives:**

1. To Understand the communication process in an organization,
2. To sharpen the communication skills both oral & written of the learner

Course Outcomes:

1. Understand the communication process in an organization.
2. Improve corporate communication skills

Methodology:

Discussion, Case studies, observations, presentation, role plays

List of Experiments:

1. Communication model and types.
2. Ethical communication
3. Planning Business messages
4. Use of tools such as mind maps composing the message.
5. Revising business messages
6. Workplace communication
7. Business reports basics- Audience analysis and report organization researching and illustrating report data
8. Interview and follow-up- Business etiquette.
9. Technical report for Business Case studies
10. Creative Project.

Text and Reference Books:

1. **Mary Ellen Guffey, Business communication: Process and Product, Thomson Publishing**
2. Penrose and Raspberry, Business communication for managers: An advanced approach, Cengage Learning.
3. John M. Lannon, Laura J. Gurak, Technical Communication, Report.
4. Laura Brown, Rich Karlgaard, The Only Business writing book you will ever read, Cengage Learning.
5. Natalie Canavor, Business Writing Today, Report.

CO-PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
C01	2	-	2	2	2	2	-	2
C02	3	-	3	2	2	2	2	2
Avg	2.5	-	2.5	2	2	2	1	2

SEMESTER I
MBAB 419: PYTHON PROGRAMMING LAB
Hard Core: 2 Credit

Course Objectives:

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

Course Outcomes:

1. Gaining basic Programming skills by solving simple problems using python
2. Understanding advanced programming skills like OOPS, Databases, Web services, machine learning.

Methodology:

Innovative Exercises and Projects.

Indicative Lab Exercises (not limited to) Implement the following Python program

1. To describe various python data types (Numeric, text, Boolean, None, mapping, sequence, set.
2. To calculate compound interest when principal, rate and number of periods are given. (variable definition and its usage)
3. To check whether the given input (from user) is digit or lowercase character or uppercase character or a special character (use 'if-else-if' ladder)
4. To Print the Fibonacci sequence using while loop
5. To print all prime numbers in a given interval (use break)
6. To define list, list slicing and list operations
7. To convert a list and tuple into arrays. Operate with dictionaries.
8. To implement various searching and sorting algorithms
9. To find factorial, sum of series etc.
10. To read dictionary values from the user. Construct a function to invert its content. i.e., keys should be values and values should be keys.
11. To implement class and creation of objects
12. To implement inheritance, polymorphism, function and operator overloading
13. To define a function that takes a sentence as an input parameter and replaces the first letter of every word with the corresponding upper case letter and the rest of the letters in the word by corresponding letters in lower case without using a built-in function?
14. To define a matrix addition, subtraction, multiplication and prints.
15. To use the structure of exception handling all general purpose exceptions.
16. To Read text from a text file, find the word with most number of occurrences
17. To Import numpy, Plotpy and Scipy and explore their functionalities.
18. To import PyLab to draw various charts.
19. To use a cryptography package, implement a python program to encrypt and decrypt the given text.
20. To create, modify, add, update and delete rows/columns in the tables of the database using Mysql.

*Applications for the exercises can be from the Banking domain.

Text and Reference Books

1. **Python Programming a Modular Approach with Graphics, Database, Mobile, and Web Applications, Sheetal Taneja, Naveen Kumar, Pearson**
2. Programming with Python, A User's Book, Michael Dawson, Cengage Learning, India Edition
3. Think Python, Allen Downey, Green Tea Press
4. Introduction to Python, Kenneth A. Lambert, Cengage

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	2	2	2	2	3	3	2
C02	3	3	2	3	3	3	3	3
Avg	3	2.5	2	2.5	2.5	3	3	2.5

SEMESTER II			
MBAB 421	Banking Operations and Management	Hard	3
MBAB 522	Financial Management	Hard	3
MBAB 423	Security Analysis and Portfolio Management	Hard	3
MBAB 524	Machine Learning	Hard	3
MBAB 425	Banking Technology Management	Hard	3
MBAB 426	IT Infrastructure Management for Banks	Hard	3
MBAB 427	Banking Technology Lab using Agile Methodology	Hard	2
MBAB 428	Financial Data Visualization Lab	Hard	2
MBAB 4XX	Elective 1: Paper – 1	Soft	3
MBAB 4XX	Elective 2: Paper – 1	Soft	3
SEMESTER II CREDITS			28

SEMESTER II
MBAB 421: BANKING OPERATIONS AND MANAGEMENT

HardCore: 3 Credit

Course Objectives:

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

Course Outcomes:

1. Gain the knowledge on various aspects of guidelines governing Indian Banks
2. Acquire practical knowledge and understanding of bank and branch operations.

Methodology:

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

Unit- I: Introduction:

Major products and Services - Ancillary services – Financial Inclusion - Emerging technologies in banking – Payment and Settlement in Banks - Regulatory Environment for a Commercial bank in India and Basel Norms - Banking Supervision, Reporting and Management.

Unit- II: Operational Aspect of Commercial Banks:

Relationship between banker and customers, Types of the customer account, Negotiable Instruments- Cheque, Endorsement, Dishonour - Bills of Exchange, Bills discounting and purchasing - Promissory notes - Rights and Liabilities of Paying and Collecting Banker, Time Value of money.

Unit- III: Lending of Loans and Advances:

Concept of Credit – Credit Policy – Credit Monitoring – Production Vs Consumption credit - Credit Instruments/ Products – Credit Facilities – Fund and Non Fund Corporate and Retail banking – Priority Sector lending – Sectoral financing –Consumer, Agriculture, SMEs, SHGs, SSI, Tiny - Consortium Financing – Credit rating and CIBIL Procedures.

Unit- IV: Securities and Modes of Charges:

General principles - Secured Vs. unsecured - Collateral securities - Advances against title of goods/ ornaments/ securities/ book debts etc., Modes of Charges: loan/ pledge/ hypothecation and mortgages – Guarantees and surety - Documentation procedures and Stamping

Unit –V: Prudential Norms:

IRAC Norms – Capital Adequacy Norms – Asset Liability Management - Exposure Norms for loans and investments - Off balance sheet exposure - Management of NPA and Recovery - Lok Adalat, DRT, SARFESI and IBC – Prompt Corrective Action.

Text and Reference Books:

1. IIBF, **Advanced Bank Management**, MacMillan Education.
2. IIBF, **Bank Financial Management**, MacMillan Education.
3. Koch.W, Scott.S., Mac Donald Timothy, **Bank Management**, Cengage Learning
4. John A.Haslem, **Banks Fund Management**, Pearson Education.
5. Jaiswal Bimal, **Banking Operation Management**, Vikas Publishing house.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	2	2	2	2	2	2
C02	2	2	3	2	3	2	3	2
Avg	2	2	2.5	2	2.5	2.5	2.5	2

SEMESTER II
MBAB 422: FINANCIAL MANAGEMENT

Hard Core: 3 Credit

Course 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

Course outcome:

1. Understand and appreciate the concepts of corporate financial functions.
2. 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:

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

Unit II: Cost Of Capital, Leverage And Capital Structure:

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

Unit III: Capital Budgeting:

Introduction, Importance of Capital Budgeting, Complexities Involved in Capital Budgeting Decisions, 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: 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 and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	3	2	3	2	2	2
C02	2	3	3	3	3	3	3	2
Avg	2	2.5	3	2.5	3	2.5	2.5	2

SEMESTER II

MBAB 423: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

Hard Core: 3 Credit

Course Objectives:

1. To impart theoretical and practical knowledge on security analysis and portfolio management.
2. To impart the knowledge and skills to value and price the equity stocks and bonds using different models.

Course Outcomes:

1. Gain the knowledge and skills to analyze different investment alternatives to make the investment decision.
2. Acquire the knowledge to start stock broking firm and 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 Profile of Equity Stocks:

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

Unit III: Fundamental and Technical Analysis:

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

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 Models and Valuation of Bonds:

Capital Market Theory–Capital Asset Pricing Model (CAPM) –Assumptions–Inputs - Capital Market Line–Security Market Line– CAPM anomalies - Fama – French models - Valuation of bonds – types – characteristics – YTM – YTC.

Text and Reference Books:

1. **Fisher & J. Ordan, Portfolio Management, Prentice Hall**
2. Reilly Brown, Investment Analysis and Portfolio Management, Cengage Learning
3. Alexander, Gordon J and Sharpe, William F., Fundamentals of Investment, Englewood Cliffs, New Jersey, Prentice Hall Inc.
4. Elton, Edwin J and Gruber, Martin J., Modern Portfolio Theory and Investment Analysis, John Wiley.
5. Lee, Cheng F., et. al., Security Analysis and Portfolio Management, Foresman, Scott, 1999 Jack Clark Francis, Investments, Prentice Hall Inc.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	1	3	3	3	3	3
C02	3	3	1	3	3	3	3	3
Avg	3	3	1	3	3	3	3	3

**SEMESTER II
MBAB 424: MACHINE LEARNING**

Hard Core: 3 Credits

Course Objectives:

1. To understand the concepts of machine learning
2. To appreciate supervised and unsupervised learning and their applications

Course Outcomes:

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

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: INTRODUCTION:

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

Unit II: SUPERVISED LEARNING:

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

Unit III: UNSUPERVISED LEARNING:

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

Unit IV: PROBABILISTIC GRAPHICAL MODELS:

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

Unit V: DEEP LEARNING:

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

Text and Reference Books

1. **Christopher Bishop, Pattern Recognition and Machine Learning, Springer.**
2. Kevin P. Murphy, Machine Learning: A Probabilistic Perspective, MIT Press.
3. Ethem Alpaydin, Introduction to Machine Learning, MIT Press.
4. Tom Mitchell, "Machine Learning", McGraw-Hill.
5. Trevor Hastie, Robert Tibshirani, Jerome Friedman, "The Elements of Statistical Learning", Springer.

CO PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	2	2	2	2	2	3
C02	3	2	2	2	2	2	3	3
Avg	2.5	2	2	2	2	2	2.5	3

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

Course Objective:

1. To understand Core Banking and the Technologies involved.
2. To learn Banking Channels and Payments gateways.

Course Outcomes:

1. Gain knowledge about CBS components and other banking software.
2. Acquire practical knowledge of Banking Technology

Methodology:

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

UNIT 1: Branch Operation and Core Banking

Introduction and Evolution of Bank Management- Reports - Technological Impact in Banking Operations– Total Branch Computerization – CBS– Concept, Opportunities .– Uses of CBS India – across the globe – A case study of recent CBS, e.g., BaNCs, Finacle, etc. – CBS components and its functionalities - Network architecture – ATM- data transfer interface –security architecture – Analysis of current CBS.

UNIT 2: Digital Banking Channels

Background – Business Models – Technology Models - Overview of delivery channels – Automated Teller Machine (ATM) – Phone Banking –Call centers – Internet Banking – Mobile Banking- micro ATM. Digital Wallets – Bank Wallets – Private Wallets Payment Gateways. Other Digital Payment Systems -Electoral bond – e-money, e-wallets, e-cheques -Crypto-currencies.

UNIT 3: Payment and Settlement Systems

Payment Systems Interbank Payment Systems – INFINET and NPCINet - Interface with Payment system Network– SWIFT- Structured Financial Messaging system (SFMS) - NEFT – RTGS; National Payments Corporation of India (NPCI) – Functions & Products – NFS - UPI – BHIM – NACH – IMPS - *99# – NETC – AEPS – BBPS - Bharat QR Code - Card technologies (RuPay), e-RUPI, CTS and Settlement Process.

UNIT 4: Digital Banking – Back-office operations

Data management – Risk management – Security and privacy of Information management – Treasury management system - asset and liability management system, and Forex management system.

UNIT 5: Other Developments

Modern Delivery Channels – Drone-based payments -Open Banking models – Neo banking Models -Virtual banking models - Security aspects of digital banking systems – Revolution of Banking systems using modern technologies– Smart Payment system models.

TEXT AND REFERENCE BOOKS

1. **Lucian Morris, Tim Walker, The Handbook of Banking Technology Hardcover – Wiley Publishers**
2. Brett King, Bank 4.0: Banking everywhere, never at a bank, Wiley Publishers
3. Financial Services Information Systems-Jessica Keyes Auerbach publication
4. Kaptan SS & Choubey NS., E-Indian Banking In Electronic Era, Sarup& Sons
5. Turban Rainer Potter, Information Technology, John Wiely& Sons Inc

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	2	2	2	2	2	3
C02	3	2	2	2	2	2	3	3
Avg	2.5	2	2	2	2	2	2.5	3

SEMESTER II

MBAB 426: IT INFRASTRUCTURE MANAGEMENT FOR BANKS

Hard Core: 3 Credit

Course Objectives:

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

Course Outcomes:

1. Gain knowledge in IT infrastructure management services.
2. Acquire practical knowledge to develop IT infrastructure management for banks.

Methodology:

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

Unit I: Server Management:

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: Services Transition

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

Unit IV: Service Operations

Service Operation principles - Service Operation processes–Common Service Operation activities –Implementing service operation - Continual Service Improvement principles- Continual Service Improvement processes –Continual Service Improvement methods and techniques – Implementing Continual Service Improvement.

Unit V: Modern IT Management

Modern IT infrastructure management – Dynamic configuration – Unified analysis – AI driven intelligence – Extensibility – Automation.

Text and References:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	3	2	2	2	2	3
C02	2	2	3	2	2	2	3	3
Avg	2	2	3	2	2	2	2.5	3

SEMESTER II
MBAB 427: BANKING TECHNOLOGY LAB USING AGILE METHODOLOGY
Hard Core: 2 Credit

Course Objectives:

1. This lab imparts knowledge of the design and development of banking software like Mobile Banking, Internet Banking, ATM systems, and Financial Middleware.
2. Focuses on a detailed study of the recent core banking software.

Course Outcomes:

1. Helps the students to build a solution for banking systems
2. Design and development of banking softwares

Methodology: Exercise, Mini project, and Assignments

LAB EXERCISES:

Design and Develop the following Banking Software using the appropriate technologies (AGILE and PYTHON).

1. Banking channels such as Mobile Banking, Internet Banking, and ATM Systems using the appropriate technologies
2. Payment systems such as UPI-enabled payment system
3. Forex management system that automates foreign exchange operations of the bank branch, like accepting foreign currency/cheques from customers/non-customers, managing inward/outward foreign remittances, importing letters of credit, Foreign currency loans, etc.
4. Treasury management system that integrates with CBS/deployed as an independent system that handles all types of currency deals with interbank, merchants, etc., maintenance of SLR and non-SLR securities, YTM on all instruments, etc.
5. Asset Liability Management system that helps bank management make investment decisions, handle risks, analyze data, and simulate interest rates.
6. E-cheque, e-demand draft, e-fixed deposits, and e-recurring bonds management system that integrates with CBS/Internet banking/Mobile banking for effective banking operations.
7. E-KYC management system with improved security features that integrate with CBS/Internet banking/Mobile banking for effective banking operations.
8. CORE banking solutions (CBS) that automate banking branch operations like general ledger maintenance, accounts management, managing deposits/withdrawals/loans, Transaction process, etc.
9. Third-party payment systems (like Facebook pay, WhatsApp pay, etc.) with improved security features, effective handling of failed transactions, and PUSH and PULL options in transactions, group payments, etc.
10. Financial middleware such as payments gateway with basic functionalities, improved security features and effective handling of failed transactions.

Text and Reference Books

1. Sheetal Taneja, Naveen Kumar, Python Programming A Modular Approach with Graphics, Database, Mobile, and Web Applications, Pearson
2. Michael Dawson, Programming with Python, A User's Book, Cengage Learning, India Edition
3. Allen Downey, Think Python, Green Tea Press
4. Kenneth A. Lambert, Introduction to Python, Cengage

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	2	2	2	2	3	2
C02	2	3	2	3	2	2	3	2
Avg	2	2.5	2	2.5	2	2	3	2

SEMESTER II
MBAB 428: FINANCIAL DATA VISUALIZATION LAB

HardCore: 2 Credit

Course Objectives:

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

Course outcomes:

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

Methodology

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

Unit I: Introduction to Data Visualization for Business: Overview of data visualization in business-Types of business data visualizations- Principles of effective data visualization for business -Tools and libraries for data visualization in Excel (e.g., PivotCharts, Power View, Power BI)

Unit II: Data Preparation and Stacking in Excel- Data Loading and Importing -Data cleaning and transformation in Excel- Handling missing data in Excel- Data aggregation and reshaping in Excel- joining and merging data in Excel-Sorting and Filtering- Text Formatting-Advanced Formatting and Filtering

Unit III: Designing Effective Visualizations: Color theory and design principles- Chart types and their uses- Labeling and annotations- Geographic Data Visualization- Mapping techniques and tools- Interactive map visualizations- Line charts and area charts- Seasonal and trend analysis- Dynamic and interactive time series visualizations

Unit IV: Multidimensional Data Visualization: Multidimensional data analysis- Scatterplot matrices- Interactive multidimensional visualizations- Interactive multidimensional visualizations- Scatterplot matrices- Parallel coordinate plots- Visualizing network data

Unit V: Data Visualization Project: A minor Case study on Data Visualization and Reporting

Text and Reference Books:

1. Wilke, C. O., **Fundamentals of data visualization: a primer on making informative and compelling figures.** O'Reilly Media.
2. Knaflic, C. N., **Storytelling with data: A data visualization guide for business professionals.** John Wiley & Sons.
3. Aakash Gohil, **Data Visualization & Storytelling for Business Analysts: Tips, Techniques, Best Practices and the Mindset**
4. Nadieh Bremer and Shirley Wu, **Data Sketches: A journey of imagination, exploration, and beautiful data visualizations (AK Peters Visualization Series)**
5. Nisal Mihiranga, **Power BI Data Modeling: Build Interactive Visualizations, Learn DAX, Power Query, and Develop BI Models (English Edition)**

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	3	2	3	2	3	2
C02	2	3	3	3	2	3	3	3
Avg	2	3	3	2.5	2.5	2.5	3	2.5

SEMESTER III			
MBAB 511	Legal Aspects of Business and Banking	Hard	3
MBAB 512	International Banking and Financial Services	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	Personal Finance and Wealth Management Lab	Hard	2
MBAB 518	Project - Phase I	Hard	2
MBAB 5XX	Elective I: Paper – 2	Soft	3
MBAB 5XX	Elective II: Paper – 2	Soft	3
MBAB 5XX	Elective III: Paper – 3	Soft	3
MBAB 519	Industrial Visit	Hard	Non-Credit
SEMESTER III CREDITS			30

SEMESTER III
MBAB 511: LEGAL ASPECTS OF BUSINESS AND BANKING
Hard Core: 3 Credits

Course Objectives:

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.

Course Outcomes:

1. Understand and appreciate the concepts of Business and Corporate Laws
2. Acquire required knowledge and demonstrate skills sets required legal process

Methodology:

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

Unit I: Introduction

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

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 - Banking Regulation Act

Text 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, Cengage 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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	3	2	2	2	2	2
C02	2	2	3	2	2	2	3	2
Avg	2	2	3	2	2	2	2.5	2

SEMESTER III
MBAB 512: INTERNATIONAL BANKING AND FINANCIAL SERVICES

Hard Core: 3 Credit

Course Objectives:

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

Course Outcomes:

1. Develop the skills to handle the Forex transactions
2. 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–**International Financial System**– 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.

Unit III: Origin and Growth of Correspondent banking

Challenges for correspondent banking–clearing house functions–payments and collections–credit services–Foreign Exchange Services. **Commodities**–Commodity price Indicators –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–**World Bank**–IMF–WTO– Growths of Multinationals.The World Bank Group–International Bank for Reconstruction and Development (IBRD)– IDA– IFC– MIGA–International Monetary Fund(IMF)– 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.

Text and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	1	1	2	2	2	2	2	2
C02	2	2	2	2	2	2	2	2
Avg	1.5	1.5	2	2	2	2	2	2

SEMESTER III
MBAB 513: STRATEGIC MANAGEMENT

Hard Core: 3 Credit

Course Objectives:

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

Course Outcomes:

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

Methodology:

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

Unit-I: Introduction to Strategy:

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

Unit- II Environmental Analysis and Appraisal

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

Unit- III Strategic Analysis and Choice:

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

Unit-IV: Strategy Implementation:

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

Unit-V: Strategy Evaluation and Control

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

Text and Reference Books:

1. **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, John E. Cambel
5. Strategic Management and Business Policy – Azhar Kazmi

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	3
C02	3	3	3	3	3	3	3	3
Avg	3	3	3	3	3	3	3	3

SEMESTER III
MBAB 514: INFORMATION SECURITY FOR BANKS

Hard Core: 3 Credit

Course Objectives:

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

Course outcomes:

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

Methodology:

Lecture, Discussion, 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.

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. 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: Case Studies

Developing security frameworks for financial applications. Case Studies on analyzing Information security for Banking Systems, INFINET etc.

Text and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	3	3	1	2	3	2
C02	3	2	3	2	2	2	3	2
Avg	2.5	2	3	2.5	1.5	2	3	2

SEMESTER III
MBAB 515: DATA WAREHOUSING AND BUSINESS INTELLIGENCE
HardCore: 3 Credit

Course 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.

Course outcomes:

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

Unit I: Introduction

The Business Dimensional Lifecycle – Project Planning and Management – Dimensional Modelling – Advanced Dimensional Modelling.

Unit II: Data Warehouse

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

Unit III: Data Warehouse Design

Aggregates – physical design – data staging – planning the deployment – maintaining and growing the data warehouse.

Unit IV: Data Mining

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: Data Mining techniques

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 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.
2. Han, Jiawei; Kamber, Micheline, Data mining: concepts and techniques, Morgan Kaufmann Publishers.
3. Paulraj Ponniah, Data Warehousing Fundamentals: A Comprehensive Guide for IT Professionals, Wiley Publications.
4. Ralph Kimball, Margy Ross, — The Data Warehouse Toolkit, Wiley Publications.
5. Arun K. Pujari, Data Mining Techniques, Oxford Universities Press.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	2	2	2	3	3	3	2
C02	3	3	2	3	3	3	3	2
Avg	3	2.5	2	2.5	3	3	3	2

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

Hard Core: 2 Credit

Course 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.

Course outcomes:

1. Use current techniques, skills, and tools necessary for business intelligence to make suitable decisions.
2. Create a comprehensive knowledge and strategic analysis of the data mining and warehousing technologies.

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	2	2	2	3	3	3	2
C02	3	3	2	3	3	3	3	2
Avg	3	2.5	2	2.5	3	3	3	2

SEMESTER III**MBAB 517: PERSONAL FINANCE AND WEALTH MANAGEMENT LAB****Hard Core: 2 Credit****Course Objectives:**

1. To provide basic principles for managing personal finance
2. To understand the role of various investment products and structured products in long term wealth creation and the risks underlying such products and services.

Course outcome:

1. Prepare personal financial plan and manage wealth management practices
2. Do investment and trading in the financial market

Methodology:

Lecture, case study design and analysis, group discussions, seminar presentation, writing assignments and tests.

Unit I: Savings, Investment and Wealth

Personal Income and Expenditure - Meaning and Types of Savings – Investment – Need for Investment – Types of Investment - Investment Criteria- liquidity, safety and profitability. - Features and characteristics of all popular investment products - Determination of Wealth - Tools and techniques to understand wealth creation and retention - Financial Planning & Financial Planning Process

Unit II: Personal Investment Avenues

Investment in Gold, Currency, Real Estate, Gold, Commodities, securities market & products, Bond & Money Markets, Insurance products, Pension products, mutual funds products & services, banking products & services, Currencies, Crypto& NFT etc., – case studies with real world examples and Trading – Career Opportunities in the securities market – Virtual and Real Time Trading and Investment using appropriate Tools and Techniques

Unit III: Securities Market and Trading

Stock market and types – Stock Exchanges and its functions – Indices and types - Stock Trading procedure – Trading and Demat account – Procedure for opening Trading and Demat account – Various Service providers – Various Financial Information Service providers like Money control, Google Finance etc., - Virtual and Real Time Trading and Investment using appropriate Tools and Techniques - Analysis and Portfolio creation using Money control, Stock Screener, Ticker Tape Etc.,

Unit IV: Computation of Return and Risk of Personal Investment

Present Value and Future Value of a Single Amount and an Annuity. Computation of interest, dividend and capital gains on personal investments. Impact of leverage on return. Personal tax planning - Calculation of Personal Income Tax – E-Filing of Income Tax and procedures - Retirement Savings Plans: Pension Plans- Defined Contribution Plan and Defined Benefit Plan. Provident Fund, Gratuity. Life Insurance Plans. General Insurance Plans. Reverse Mortgage Plans - Risk-Return Framework – calculation and understanding of Standard Deviation, Beta - Risk Adjusted Returns:-Sharpe Ratio, Treynor Ratio, Alpha - Personal Budgeting - Preparation of personal Budget Using Spreadsheet and various suitable Apps.

Unit V: Personal Debt Management

Personal Debt Management – Various types of personal loans – Evaluation and selection of personal loan – case studies using Loan apps – Credit and Debit card management – Buy now Pay Later Schemes – other credit schemes

Text and Reference Books:

1. Jack R. Kapoor, Les R. Dlabay and Robert J. Hughes, “Personal Finance”, Tata McGraw-Hill Publishing Company Ltd.
2. Bhole, “Financial institutions and markets” TMH publishers.
3. Chandra, Prasanna, ‘Investment Analysis and Portfolio Management’, Tata McGraw Hill.
4. Damodaran, Aswath, ‘Investment Validation Tools and Technique for Determining Mutual Funds’, John Wiley & Sons
5. ‘Everything You Wanted To Know About Stock Market Investing’ - Network 18 Publication Pvt. Ltd

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	1	3	3	3	3	3
C02	3	3	1	3	3	3	3	3
Avg	3	3	1	3	3	3	3	3

SEMESTER III
MBAB 518: PROJECT PHASE I

Hard Core: 2 Credit

1. Project Identification

- Broad area
- Tentative Title

2. Literature Review

- Evaluating the literature review (minimum 10 Research Documents).
- Identifying the research gap.

3. Research Problem and Objectives

- Defining the research problem
- Formulating research questions and objectives

4. Methodology

- Explaining research methodology
- Relevance of methodology for the project.
- Data and their sources/ Test Data Design /Simulation
- Experiment Design

5. Project Phase II Timeline

- Tentative timeline for the phase II indicating
- Time for Data Collection, analysis, interpretation, implementation, writing, and report Weightage for the evaluation of Project - Phase I

Sl. No.	Components	Weightage (%)
1	Project identification	15
2	Review of literature	25
3	Research questions and objectives	25
4	Methodology	25
5	Project Phase II timeline	10

SEMESTER IV

SEMESTER IV			
MBAB 5XX	Elective I: Paper – 4	Soft	3
MBAB 5XX	Elective II: Paper – 3	Soft	3
MBAB 5XX	Elective II: Paper – 4	Soft	3
MBAB 521	Bank Internship	Hard	3
MBAB 522	Project - Phase II & Viva	Hard	6
SEMESTER IV CREDITS			18

SEMESTER IV
MBAB 521: BANK INTERNSHIP

Hard Core: 3 Credit

Course Objectives:

Banking Internship is to be carried out for 45 days 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 90% Physical attendance is Mandatory. Report(s) is to be prepared on the following topics with copies of forms, documents of that given bank duly certified by the banking authorities is to be submitted and it will be evaluated by Examiners. A viva will be conducted to evaluate the knowledge and skills learned by students during internship.

Course Outcome:

1. Acquire practical knowledge and understanding of Banking Operations
2. Apply critical thinking and problem-solving skills to real- world Banking challenges.

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	3	3	3	3	3	3
C02	3	3	3	3	3	3	2	3
Avg	2.5	3	3	3	3	3	2.5	3

SEMESTER IV
MBAB 522: PROJECT PHASE II & VIVA

Hard Core: 6 Credit

Course Objectives:

1. To develop models, prototype etc. as solution

Course 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

1. Analysis & Design

- Statistical/Mathematical/System Analysis
- Experiment/ System Design

2. Results

- Results Visualization & Reporting
- Results Consolidation.

3. Discussions

- Research Outcome
- Policy Implications

4. Documentation

- Preparation Report

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.

Sl.No.	Components	Weightage (%)
1	Analysis & Design	20
2	Results	20
3	Discussions	20
4	Documentation/Result	20
5	Viva	20

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	3	3	3	3	3	3
C02	3	3	3	3	3	3	2	3
Avg	2.5	3	3	3	3	3	2.5	3

LIST OF SOFTCORE COURSES			
List of Softcore courses – IT Stream			
MBAB X31	Design Patterns	Soft	3
MBAB X32	Smart Banking Technologies	Soft	3
MBAB X33	Software Project Management	Soft	3
MBAB X34	Service Oriented Architecture	Soft	3
MBAB X35	Data Science Using R	Soft	3
MBAB X36	Big Data Analytics	Soft	3
MBAB X37	Natural language Understanding and Chatbots	Soft	3
MBAB X38	Blockchain Technology	Soft	3
MBAB X39	Information Systems Control and Audit	Soft	3
MBAB X40	Data Visualization and Reporting	Soft	3
MBAB X41	Robotic Process Automation	Soft	3
MBAB X42	UX Design	Soft	3
List of Softcore courses – Finance Stream			
MBAB X43	Retail Banking	Soft	3
MBAB X44	Central Banking & Policy Development	Soft	3
MBAB X45	Corporate Restructuring	Soft	3
MBAB X46	Human Resource Management	Soft	3
MBAB X47	Merchant Banking and Financial Services	Soft	3
MBAB X48	Entrepreneurship and Start-ups	Soft	3
MBAB X49	Cyber Crimes and IT Laws	Soft	3
MBAB X50	Risk Management in Banks	Soft	3
MBAB X51	Financial Modelling	Soft	3
MBAB X52	Forex and Currency Derivatives	Soft	3
MBAB X53	Prudentail Management for Banker	Soft	3
MBAB X54	Sustainable Finance	Soft	3

SOFTCORES IT STREAM
MBAB X31: DESIGN PATTERNS

Soft Core: 3 Credit

Prerequisites: Knowledge in OO Concepts

Course Objectives:

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

Course Outcomes:

1. Gain knowledge on principles and strategies of Design Pattern
2. 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 and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	2	3	3	3	2	2
C02	2	3	2	3	3	2	3	3
Avg	2	3	2	3	3	2.5	2.5	2.5

**SOFTCORES IT STREAM
MBAB X32: SMART BANKING TECHNOLOGIES**

SoftCore: 3 Credit

Prerequisites: Knowledge in Banking Technology

Course Objectives:

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

Course Outcomes:

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

Methodology:

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

Unit I: Smart Banking and Software Agents

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

Unit II: RFID – Introduction – RFID system components

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

Unit III: Context Aware Computing

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

Unit IV: Internet of Things

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

Unit V: Case Studies

In Software Agents, RFID, Context Aware Computing and Internet of Things - Contemporary Banking using Robots, Drones etc.

Text and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	2	3	3	3	2	2
C02	2	3	2	3	3	2	3	3
Avg	2	3	2	3	3	2.5	2.5	2.5

SOFTCORES IT STREAM
MBAB X33: SOFTWARE PROJECT MANAGEMENT

SoftCore: 3 Credit Soft

Prerequisites: Basic knowledge of Software Design principles

Course objectives:

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

Course outcome:

1. Gain knowledge on Software project management principles and practices.
2. Acquire practical knowledge on Project Management tools and techniques

Methodology:

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

Unit I: Product, Process and Project

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

Unit II: Software Quality assurance

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

Unit III : Project Schedule

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

Unit IV: Project Management in Testing phase

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

Unit V: Emerging trends in Project Management:

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

Text and Reference Books

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	1	2	2	3	2	1
C02	2	3	2	3	2	2	3	1
Avg	2	2.5	1.5	2.5	2	2.5	2.5	1

SOFTCORES IT STREAM
MBAB X34: SERVICE ORIENTED ARCHITECTURE

SoftCore: 3 Credit Sof

Prerequisites: Basics of application development

Course Objectives:

1. To correlate business processes with of Service Oriented Architecture and design services based implementation respectively
2. To introduce microservices and analyse applications as microservices

Course Outcome:

1. Design and develop real work applications using the concepts of SOA and Web services
2. Identify and implement microservices for business applications

Methodology:

Lecture, Discussion, Case studies, Assignments and Hands-on practice

Unit I: SOA and MSA Basics:

Service Orientation in Daily Life, Evolution of SOA and MSA. Service Oriented Architecture and Microservices architecture – Drivers for SOA, Dimensions of SOA, Conceptual Model of SOA, Standards and Guidelines for SOA, Emergence of MSA. Enterprise-Wide SOA: Considerations for Enterprise-wide SOA, Strawman Architecture for Enterprise-wide SOA, Enterprise SOA Reference Architecture, Object-oriented Analysis and Design (OOAD) Process. Service-oriented Analysis and Design (SOAD) Process, SOA Methodology for Enterprise.

Unit: II: Service-Oriented Applications:

Considerations for Service-oriented Applications, Patterns for SOA, Pattern-based Architecture for Service-oriented Applications, Composite Applications, Composite Application Programming Model. Service-Oriented Analysis and Design: Need for Models, Principles of Service Design, Nonfunctional Properties for Services, Design of Activity Services (or Business Services), Design of Data Services, Design of Client Services, Design of Business Process Services

Unit III: Microservices:

Microservices: Understanding Microservices, Adopting Microservices, The Microservices Way. Microservices Value Proposition: Deriving Business Value, defining a Goal-Oriented, Layered Approach, Applying the Goal Oriented, Layered Approach. Designing Microservice Systems: The Systems Approach to Microservices, A Microservices Design Process, Establishing a Foundation: Goals and Principles, Platforms, Culture.

Unit IV: Business Process Design: WS-BPEL language basics; WS Coordination overview; Service oriented business process design; WS addressing language basics; WS Reliable Messaging language basics. SOA Platforms: SOA platform basics; SOA support in J2EE /.NET, Business Case studies.

Unit V: Service Design:

Microservice Boundaries, API design for Microservices, Data and Microservices, Distributed Transactions and Sagas, Asynchronous Message-Passing and Microservices, dealing with Dependencies, System Design and Operations: Independent Deployability, More Servers, Docker and Microservices, Role of Service Discovery, Need for an API Gateway, Monitoring and Alerting. Adopting Microservices in Practice: Solution Architecture Guidance, Organizational Guidance, Culture Guidance, Tools and Process Guidance, Services Guidance

Text and Reference Books

1. **Shankar Kambhampaty, Service-oriented Architecture and Microservice Architecture: For Enterprise, Cloud, Big Data and Mobile, Wiley.**
2. Irakli Nadareishvili, Ronnie Mitra, Matt McLarty & Mike Amundsen, Microservice Architecture - Aligning Principles, Practices, and Culture, O'Reilly.
3. Sam Newman, Building Microservices - Designing Fine-Grained Systems, O'Reilly.
4. Thomas Erl, Service Oriented Architecture: Concepts, Technology, and Design, Pearson Education.
5. Icon Group International; The 2018-2023 World Outlook for Service-Oriented Architecture (SOA) Software and Services; ICON Group International.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	2
C02	2	2	3	3	3	3	3	2
Avg	2.5	2.5	3	3	3	3	3	2

SOFTCORES IT STREAM
MBAB X35: DATA SCIENCE USING R

Softcore: 3 Credit

Prerequisite: Basics of programming.

Course Objectives:

1. To understand the data science fundamentals and process.
2. To understand the data description and data relationship for data science process.

Course Outcomes:

1. Define the data science process
2. Understand different types of data description and relationships between data for data science process.

Methodology:

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

UNIT 1: Introducing to Data Science

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

Unit II Describing data and its relationship

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

Unit 3- Data definition, Control structures and Functions in R

R fundamentals – basic function and operations -R Data types – Control structures, R Data Structures – Declarations - Vector – Characters- Strings- Factors- Identifying Categories- Defining and Ordering Levels- Introduction to Functions – built-in functions –user defined functions - functions scoping rules, dates and times, Recursions. Defining a Matrix- Subsetting- Matrix Operations - Multidimensional Arrays- Subsets, Extractions, and Replacements.

UNIT 4: Data Manipulation in R

Lists of Objects-Component Access-Naming-Nesting-Data Frames-Adding Data Columns and Combining Data Frames-Logical Record Subsets-Some Special Values-Infinity-NaN-NA-NULL. Attributes-Object-Class-Is-Dot Object-Checking Functions-As-Dot Coercion Functions. Reading And Writing Files- R-Ready Data Sets- Contributed Data Sets- Reading in External Data Files- Writing Out Data Files and Plots- Ad Hoc Object Read/Write Operations. Usage of Tidy, Tidyverse, dplyr, carret, Tidyquant package, digest, e1071.

UNIT 5: Data Visualization and Statistical Modelling in R

Using plot with Coordinate Vectors-Graphical Parameters-Automatic Plot Types-Title and Axis Labels Color-Line and Point Appearances -ggplot2 Package-Quick Plot with qplot-Setting Appearance Constants with Geoms. Statistical functions for central tendency, variation, skewness and kurtosis, handling of bivariate data through graphics, correlations, regression, programming and illustrative examples in banking domain.

TEXT and REFERENCE BOOKS:

1. David Cielen, Arno D. B. Meysman, and Mohamed Ali, **Introducing Data Science**, Manning Publications.
2. Robert S. Witte and John S. Witte, **Statistics**, Wiley Publications.
3. Hadley Wickham, **R for data science: Import, Tidy, Transform, Visualize, And Model Data**, O'Reilly.
4. Eric Pimpler, **Data Visualization and Exploration with R A Practical Guide to Using R RStudio and Tidyverse for Data**.
5. Hadley Wickham, **“Advanced R”**, CRC Press.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	2
C02	2	2	3	3	3	3	3	2
Avg	2.5	2.5	3	3	3	3	3	2

SOFTCORES IT STREAM
MBAB X36: BIG DATA ANALYTICS

Softcore: 3 Credit

Prerequisites: Statistics, Operating Systems, DBMS

Course 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

Course 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 websites and visualization for Social networks

Methodology:

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

Unit I: Basics of Data Science and Analytics:

Data understanding-Data preparation- Data transformation- Mathematical foundations Algebraic view - vectors, matrices- Geometric view - vectors, distance, projections, eigenvalue decomposition -Statistics for decision making- Descriptive statistics, the notion of probability, distributions. Data analytics framework- General Software Tools for Data Analysis-Basic programming environment- -Data extraction- Data visualization- Big Data.

Unit II: Big Data Concepts and Platform:

Evolution of Big data – Types and Sources of Data – Characteristics - Analytics Cycle - Roles in Analytic Projects - Big Data Challenges and Applications in Industries - Different Types of Analytics. Hadoop - History, Terminologies, DFS, HDFS - Design, Read and Write in HDFS, Commands - Cluster Architecture- Eco System and Tools.

Unit III: Algorithms for Handling Big Data:

Random Forest Algorithm, Unstructured Data Analytics, Overkill Algorithm-Randomized Matrix Algorithms in Parallel and Distributed Environments, Mahout: Probabilistic Hashing for Efficient Search and Learning on Massive Data Dirichlet process clustering, Latent Dirichlet Allocation, Singular value decomposition, Parallel Frequent Pattern mining, Complementary Naive Bayes classifier, Random forest decision tree based classifier.

Unit IV - Advanced Analytics and Statistical Modeling for Big Data

Technology & Tools: Learning various tools to Perform Analytics on Unstructured data using the MapReduce Programming paradigm. Use Hadoop, 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 the database. Apache Spark

Unit V - 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 statistically sound results vs. statistically significant ones. Identify a model for sample data and define the null and alternative hypothesis.

Text and Reference Books:

1. João Moreira, Andre Carvalho, Tomás Horvathm, A General Introduction to Data Analytics, Wily.
2. DT Editorial Services, Big Data (Covers Hadoop 2, MapReduce, Hive, YARN, Pig, R and Data Visulization) Black Book, Dreamtech Press.
3. Soumendra Mohanty. Analytics in Practice. Tata McGraw-Hill Education Private Limited.
4. Collier K, Agile analytics: A value-driven approach to business intelligence and data warehousing. Addison-Wesley
5. Miner D, Shook A, MapReduce design patterns: building effective algorithms and analytics for Hadoop and other systems. O'Reilly Media.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	2
C02	2	2	3	3	3	3	3	2
Avg	2.5	2.5	3	3	3	3	3	2

SOFTCORES IT STREAM
MBAB X37: NATURAL LANGUAGE UNDERSTANDING AND CHATBOTS

Softcore: 3 Credit

Prerequisites: Data mining

Course 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.

Course Outcome:

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

Methodology:

Lecture, Discussion, Case studies, observations, presentation.

Unit I: Words

Structure – spell check, morphology using FSTs - Semantics - Lexical Semantics, Word Net and 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

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: Text to Speech

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

Text and Reference Books

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	2
C02	2	2	3	3	3	3	3	2
Avg	2.5	2.5	3	3	3	3	3	2

SOFTCORES IT STREAM
MBAB X38: BLOCKCHAIN TECHNOLOGY

Softcore: 3 Credit

Prerequisites: Computer Networks and security systems

Course Objectives:

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

Course Outcomes:

1. Gain knowledge relating various block chain and cryptographic concepts
2. 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: Blockchain overview:

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

Unit II: Cryptography and Other Technologies:

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

Unit III: Smart Contracts

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

Unit IV: Implementation:

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

Unit V: Cryptocurrencies:

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

Text and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	2
C02	2	2	3	3	3	3	3	2
Avg	2.5	2.5	3	3	3	3	3	2

SOFTCORES IT STREAM
MBAB X39: INFORMATION SYSTEMS CONTROL AND AUDIT

Softcore: 3 Credit

Prerequisites: Basics of Information System

Course 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.

Course outcome:

1. Understand the concepts of Audit and Control in information system.
2. 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

Management Control Framework – Top Management Controls – Systems Development Management Controls–Programming Management Controls

Unit III: Data Resource Management

Data Resource Management Controls–Security Management Controls–Operations Management Controls–Quality Assurance Management Controls

Unit IV: Application Control

The Application Control Framework– Boundary Controls– Input Controls- Communication Controls

Unit V: Process Control

Processing Controls– Database Controls– Output Controls

Text and Reference Books:

1. **RonWeber, “Information System Control and Audit”, Prentice Hall.**
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.
3. Frederick Gallegos, DanielP. Manson, Sandra Sen ft,and Carol Gonzales Gallegos, Information Technology Control and Audit, Auerbach Publications
4. Alexander, Michael, Microsoft Access 2007 Data Analysis. Wiley.
5. Mayer-Schönberger,V. and K. Cukier, Big Data, First Mariner Books

CO-PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
C01	3	3	2	2	2	3	3	2
C02	3	3	2	3	3	3	3	2
Avg	3	3	2	2.5	2.5	3	3	2

SOFTCORES IT STREAM
MBAB X40: DATA VISUALIZATION AND REPORTING

Softcore: 3 Credit

Prerequisites: Data warehousing and Data Mining

Course Objectives:

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

Course outcome:

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

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

Unit I :CORE SKILLS FOR VISUAL ANALYSIS

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

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

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

Unit III :DISTRIBUTION, CORRELATION,AND MULTIVARIATE ANALYSIS

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

Unit IV :INFORMATION DASHBOARD DESIGN

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

Unit V: INFORMATION DASHBOARD DESIGN II

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

Text and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	2
C02	2	2	3	3	3	3	3	2
Avg	2.5	2.5	3	3	3	3	3	2

**SOFTCORES IT STREAM
MBAB X41: ROBOTIC PROCESS AUTOMATION**

Softcore: 3 Credit

Prerequisites: Basic Knowledge about Robotics and Automation

Course Objectives:

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

Course Outcomes:

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

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

UNIT I: AI AND AUTOMATION

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

UNIT II: INTRODUCTION TO RPA

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

UNIT III: UI PATH

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

UNIT IV: BLUE PRISM

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

UNIT V: AUTOMATION ANYWHERE

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

Text Books and References:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	2
C02	2	2	3	3	3	3	3	2
Avg	2.5	2.5	3	3	3	3	3	2

SOFTCORES IT STREAM
MBAB X42: UX DESIGN

Softcore: 3 Credit

Prerequisites: Basic Knowledge about Designing.

Course objectives:

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

Course outcomes:

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

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

UNIT I FOUNDATIONS OF DESIGN

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

UNIT II FOUNDATIONS OF UI DESIGN

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

UNIT III FOUNDATIONS OF UX DESIGN

Introduction to User Experience - Why You Should Care about User Experience - Understanding User Experience - Defining the UX Design Process and its Methodology - Research in User Experience Design - Tools and Method used for Research - User Needs and its Goals - Know about Business Goals - Principles of accessibility of Web and Mobile Design.

UNIT IV WIREFRAMING, PROTOTYPING AND TESTING

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

UNIT V RESEARCH, DESIGNING, IDEATING, & INFORMATION ARCHITECTURE

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

Text and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	3	3	3	2
C02	2	2	3	3	3	3	3	2
Avg	2.5	2.5	3	3	3	3	3	2

**SOFTCORES FINANCE STREAM
MBAB X43: RETAIL BANKING**

Softcore: 3 Credit

Prerequisites: Basics of Banking Concepts and practices.

Course Objective:

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

Course 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 to Retail Banking:

Meaning and definition, Retail Vs. Corporate/ Wholesale Banking – Commercial banks - Regulatory Framework – RBI guidelines – Emerging trends - Business Intelligence and analytics – New product development – Product customization - Role of technology in retail banking.

Unit- II: Retail Products and Services

Customer requirement and products development process –Approval process for retail loans - credit scoring - Asset Products - Home Loans, Vehicle Loans, Personal Loans, Educational Loan, Credit Card, Debit card, - Eligibility, Purpose, Amounts, Margin, Security, Disbursement, Moratorium, Repayment, Prepayment - Credit Vs Debit Cards - Eligibility, Purpose, Amounts, Margin, Security, Billing Cycle, Credit Points - Other Products – Remittances, Funds Transfer etc. – Record keeping and documentation procedures.

Unit- III: Marketing of Retail Products

Retail Strategies - Tie-ups with Institutions, OEMs, Builders etc. - Delivery Channels - Branch, ATMs, POS, Internet Banking, M-Banking etc. Selling Process - Direct Selling Agents - Customer Relationship Management.

Unit – IV: Regulations and Compliance

Account opening – AML and KYC norms – NPA Norms – Recovery of Retail Loans - defaults, rescheduling, recovery process - SARFAESI Act, DRT Act, Lok Adalat forum - Recovery Agents - Outsourcing - RBI guidelines - CIBIL Procedures.

Unit-V: Retail Banking Developments

Securitization, Mortgage based securities, New products -Insurance, Demat services, online / Phone Banking, Property services, Investment advisory/ Wealth management, Reverse Mortgage - Cross selling opportunities.

Text and Reference Books:

1. **O.P.Agarwal, Fundamentals of Retail Banking, Himalaya Publishing House.**
2. IIBF, Retail Banking, MacMillan Education.
3. IIBF, Retail Banking & wealth management, MacMillan Education.
4. Keith Pond, Retail Banking, Gosbrook Professional Publishing.
5. Suresh Samudrala, Retail Banking Technology, Jaico Publishing House.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	2	2	3	3	3
C02	3	3	3	3	3	3	3	3
Avg	3	3	3	2.5	2.5	3	3	3

SOFTCORES FINANCE STREAM
MBAB X44: CENTRAL BANKING & POLICY DEVELOPMENT

Softcore: 3 Credit

Prerequisites: Basics of Economics & Banking

Course Objective

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

Course 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 to RBI and Conventional Central Banking:

Establishment of RBI and RBI Act, 1934 - RBI as the Apex Bank in the Indian Banking System – Conventional central banking functions of RBI: Issue of Currency – Lender of Last Resort – Regulator and Supervisor of Banks – Payment and Settlement System - Government Debt Management – Management of Forex and Foreign Exchange Rate – Conduct of Monetary Policy

UNIT II: RBI as Regulator and Supervisor of the Banks in India

Rational for Banking Regulation – Various forms of Banking Regulations in India: bank licensing – LOLR - deposit insurance – Capital adequacy requirements under Basel norms – Prudential regulations on asset quality, income recognition and provisioning – Rationale for Banking Supervision – Onsite inspection and off-site surveillance by RBI – CAMELS

UNIT III: Conduct of Monetary Policy

Overview of Theories of Money Demand and Money Supply – Role of Commercial Banks in Money Creation under Partial Reserve System – RBI's Control on Money Supply and Determination of Interest Rates – Monetary Policy framework: Objectives, Instruments and Targets – Channels of Monetary Transmission – RBI's Monetary Policy Operating Procedure – RBI's Inflation Targeting framework

UNIT IV: RBI Functions and Debt Management

Rbi as banker to the government - Public Debt Management - Government Securities market - fiscal and money coordination.

UNIT V: External Sector Management and RBI

Overview of Open-economy Macroeconomics – Economic Reforms in India and liberalization of international capital flows – Market oriented exchange rate management – Challenges for conduct of monetary policy under *Impossible Trinity* – RBI's balancing act

Text and Reference Books:

1. **Blinder, Alan S., Central banking in theory and practice, Mit press**
2. Mishkin, Frederic S., Economics of Money, Banking and Financial Markets, Pearson Education, 11th Edition.
3. Gans, Joshua, Robin Stone cash, Martin Byford, Gregory Mankiw, Stephen King, and Jan Libich, Principles of economics, Cengage AU.
4. Samantaraya, Amaresh (2024): Functions, Regulations and Management of Banks in India, Cambridge University Press (Forthcoming).

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	2	2	3	3	3
C02	3	3	3	3	3	3	3	3
Avg	3	3	3	2.5	2.5	3	3	3

SOFTCORES FINANCE STREAM
MBAB X45: CORPORATE RESTRUCTURING

Softcore: 3 Credits

Prerequisites: Basic knowledge on Business Management and Strategic Management

Course Objectives:

1. To create awareness on understanding concepts and principles
2. To provide expert knowledge of legal, procedural and practical aspects of Corporate Restructuring

Course Outcome:

1. To understand practical aspects and intent of law relating to Corporate Restructuring
2. To acquire knowledge of the legal, procedural and practical aspects of Corporate Restructuring

Methodology:

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

UNIT-I CONCEPTS

Meaning of corporate restructuring, need, scope and modes of restructuring - Historical background - National scenario and Global scenario. Planning, formulation and execution of various corporate restructuring strategies – Concepts of Mergers, Acquisitions, Takeovers, Disinvestments, Strategic alliances, Demergers, & Hiving off. Revival, Rehabilitation and Restructuring of Sick Companies - Sick companies and their revival with special reference to the law and procedure relating to sick companies.

UNIT – II MERGERS AND ACQUISITIONS

Concept; legal, procedural, economic, accounting, taxation and financial aspects of mergers and amalgamations including stamp duty and allied matters; interest of small investors; merger aspects under competition law; jurisdiction of courts; filing of various forms; Amalgamation of banking companies and procedure related to Government companies; Cross border mergers – Latest Merger and Acquisition cases and status.

UNIT-III TAKEOVERS

Meaning, concept & types of takeovers - legal aspects - SEBI takeover regulations; procedural, economic, financial, accounting and taxation aspects; stamp duty and allied matters; payment of consideration; bail out takeovers and takeover of sick units; takeover defences; cross border takeovers – Examples of Recent Takeovers and the status.

UNIT-IV CORPORATE DEMERGERS AND REVERSE MERGERS

Concept of demerger; modes of demerger - by agreement, under scheme of arrangement; demerger and voluntary winding up; legal and procedural aspects; tax aspects and reliefs; reverse mergers – procedural aspects and tax implications. Revival, Rehabilitation and Restructuring of Sick Companies - Sick companies and their revival with special reference to the law and procedure relating to sick companies - Examples of recent demergers and the status

UNIT – V CHANGING WORLD AND ITS EFFECT ON RESTRUCTURING

Globalisation: Dominance of Services economy; technological and communication advancement; Expansion of Financing opportunities and Financial Innovations; expanding role of professionals. Corporate Restructuring in Challenging Times: Financial Mis-governance; Liquidity Crunch, Sub Prime Crises; Global Recession; Solutions for Business Failures.

TEXT AND REFERENCE BOOKS

1. Rabi Narayan & Kar, Minakshi, Mergers Acquisitions & Corporate Restructuring | Strategies & Practices , Taxmann publications
2. K.R. Sampath, Mergers, Amalgamations, Takeovers, Joint Ventures, LLPs and Corporate Restructure, Snow White Publications
3. Ray, J., Mergers and Acquisitions Strategy, Valuation and Integration, PHI publications
4. K.R. Chandratre (Dr.), Corporate Restructuring, Bharat Law House Pvt. Ltd
5. ICSI's Handbook on Mergers Amalgamations and Takeovers

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	3	3	2	2	3	3
C02	2	3	3	3	3	3	3	3
Avg	2.5	3	3	3	2.5	2.5	3	3

SOFTCORES FINANCE STREAM
MBAB X46: HUMAN RESOURCE MANAGEMENT

Softcore: 3 Credits

Prerequisites: Basics of Business

Course Objectives:

1. To familiarize the students with methods and techniques of HRM
2. To equip the students with the application of the HRM tools in real world business situations.

Course Outcome:

1. Understand and appreciate the concepts of Human Resources Management
2. Understand the recent trends in Human Resources Management

Methodology:

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

UNIT-I: Introduction

Human Resources Management - Definition - Objectives - Functions - Scope - Importance - HRM in India- Organisation and Functions of the HR and Personnel Department – HR Structure and Strategy; Evolution of HRM - Computer Application in Human Resource Management

UNIT – II: Staffing

Recruitment and Selection - Manpower Planning - Job Analysis - Job Description and Job Specification Factors - Governing Recruitment, Recruitment Sources and Techniques. = Selection – Induction & Orientation - Performance and Potential Appraisal

UNIT-III: Human Resources Development

Human Resources Development –Training and Development Methods - Design & Evaluation of T&D Programmes - Career Development - Promotions and Transfers - Personnel Empowerment including Delegation - Retirement and Other Separation Processes.

UNIT-IV: Talent Management

Talent Acquisition - selecting recruitment source - preparing recruitment budget - employer branding - Talent Retention: Comprehensive approach to Retaining employees - Managing Voluntary Turnover - Strategic Compensation plan for Talent Engagement - leadership and traits - Leadership behavior and styles.

UNIT – V: Trends in HRM

Learning Organization - Business Process Reengineering and Role of HRM - Work-life balance - Competency mapping - Cross cultural management - Moonlighting- Human Resource Information System - Human Resource Audit and Human Resource Accounting - Employee Empowerment.

TEXT and REFERENCE BOOKS

1. **P. Subba Rao, Personnel & Human Resource Management, Himalaya Publishing House.**
2. K. Aswathappa, Human Resource and Personnel Management, Tata Mc Graw Hill Publishing Co. Ltd.
3. Flippo, Edwin B., Personnel Management, Tata McGraw Hill Publishing Co.
4. Venkata Ratnam C. S. & Srivatsava B. K., Personnel Management and Human Resources, Tata McGraw Hill.
5. Aswathappa, Human Resource Management, Tata McGraw Hill

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	3	3	3	3	3	3
C02	2	2	3	3	3	3	3	3
Avg	2	2	3	3	3	2	2	3

SOFTCORES FINANCE STREAM
MBAB X47: MERCHANT BANKING AND FINANCIAL SERVICES
Softcore: 3 Credits

Prerequisites: Basics of Treasury and Debt instruments

Course Objectives

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

Course 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 and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	3	3	3	3	3	3
C02	3	2	3	3	3	3	3	3
Avg	2.5	2	3	3	3	3	3	3

**SOFTCORES FINANCE STREAM
MBAB X48: ENTREPRENEURSHIP AND START-UPS**

Soft Core: 3 Credits

Prerequisite: Basic Knowledge in Business

Course 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 a new business and the skills for managing an existing family business.

Course 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: Introduction to Entrepreneurship:

The Entrepreneurial mindset- Types of Entrepreneurship and startups-Evaluating Entrepreneurial Career Options and Startup Opportunities Overview of Entrepreneurship - understanding of the role of innovation and creativity - successful Entrepreneurs

Unit II: Identifying and Evaluating Opportunities:

Market research and analysis- Idea generation and screening- Opportunity evaluation and selection-Role of Government: Government push for startups-facilities-training- approaching government-innovative ideas-different departments

Unit III: Creating a Business Plan and Financing a Startup:

Elements of a business plan- Pitching and presenting a business plan- Financial projections and analysis- Understanding Startup Finances and Capital Requirements- Sources of funding for startups- Bootstrapping and self-funding- Venture capital and angel investing

Unit IV: Legal and Regulatory Issues:

Firm Registration and Formalities- Regulatory Compliance- Intellectual property protection- Contract negotiation and drafting- Developing and Presenting Startup Business Plan- Patent Registration- Reporting - Managing risk and uncertainty

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” The Imperatives of the Launch Stage Legal Issues Facing Entrepreneurs Building Your Team

Text and Reference Books:

1. Hisrich, Robert D. Effective entrepreneurial management. Springer international publishing.
2. Harvard Review, Steve Blank, Marc Andreessen, Reid Hoffman, and William Sahlman. HBR, 10 Must Reads on Entrepreneurship and Startups. Ascent Audio.
3. by Krishiv Agarwal & Nikhil Agarwal, The StartUp Masterplan: How to Build a Successful Business from Scratch.
4. Lassala, Carlos, and Samuel Ribeiro-Navarrete. Financing Startups. Springer International Publishing.
5. Drucker, Peter. Innovation and entrepreneurship. Routledge.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	3	3	2	3	3	3	3	2
C02	3	3	2	3	3	3	3	3
Avg	3	3	2	3	3	3	3	2.5

SOFTCORES FINANCE STREAM
MBAB X49: CYBER CRIMES AND IT LAWS

Soft Core: 3 Credits

Prerequisites: Basics of IT Laws

Course Objective:

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

Course 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.

Text and Reference books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	2	2	2	2	3	3	3
C02	3	3	3	3	3	3	3	3
Avg	2.5	2.5	2.5	2.5	2.5	3	3	3

**SOFTCORES FINANCE STREAM
MBAB X50: RISK MANAGEMENT IN BANKS**

Softcore: 3 Credits

Prerequisites: Basics of Banking principles and practices.

Course Objectives:

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

Course 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 – Basel Committee Norms – Risk Process- Risk Organization and policy – Important risks in commercial banks – Regulatory Framework and RBI guidelines - Liquidity Risk Management and Asset Liability Management.

Unit II: Credit Risk:

Credit risk framework - RBI guidelines - Risk rating and risk pricing - Credit risk assessment - 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:

Operational risk framework - 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:

Interest rate risk - Price risk (Equity) - Commodity risk - Currency risk – Managing Market risk - Measuring Market risk under Basel- Standardized duration method- Internal measurement approach – Value at Risk (VaR) – Equity Risk Premium (ERP)

Unit V: Risk Measurement, Control and Management:

Risk Calculation - Risk exposure analysis - Prudential norms – Income Recognition and Asset Classification (IRAC) norms -Capital adequacy norms - Hedging – Forwards – Futures – Options Arbitrage opportunities - Regulatory prescriptions of risk management - Systems Audit - Risk Organization and Policy.

Text and Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	3	3	2	3	3	3
C02	2	3	3	3	3	3	3	3
Avg	2	3	3	3	2.5	3	3	3

**SOFTCORES FINANCE STREAM
MBAB X51: FINANCIAL MODELLING**

Softcore: 3 Credits

Prerequisites: Basics of derivatives

Course Objectives:

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

Course 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: Introduction to Financial Modeling:

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

Unit II: Building Financial Models in Excel:

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

Unit III: Financial Analysis and Decision Making:

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

Unit IV: Financial Modeling in Corporate Finance:

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

Unit V: Advanced Financial Modeling Techniques:

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

Text and Reference Books:

1. Benninga, Simon. Financial modeling. MIT press.
2. Proctor, K. Scott., Building financial models with Excel: A guide for professionals.
3. Day, Alastair. Mastering cash flow and valuation modelling. Pearson UK.
4. Sengupta, Chandan. Financial analysis and modeling using Excel and VBA. Vol. 456. John Wiley Sons.
5. Yeo, Julian, Financial statement analysis.

CO-PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
C01	3	3	2	2	2	3	3	2
C02	3	3	2	2	2	3	3	2
Avg	3	3	2	2	2	3	3	2

**SOFTCORES FINANCE SEMESTER
MBAB X52: FOREX AND CURRENCY DERIVATIVES**

Softcore: 3 Credits

Prerequisites: Basic Knowledge on Financial Market Operations

Course 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

Course 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 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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	2	2	2	2	3	2
C02	3	3	3	3	3	3	2	3
Avg	2.5	3	2.5	2.5	2.5	2.5	2.5	2.5

**SOFTCORES FINANCE SEMESTER
MBAB X53: PRUDENTIAL NORMS FOR INDIAN BANKS**

Soft Core: 3 Credits

Prerequisites: Basics of understanding of Banking principles and practices in India.

Course Objectives:

1. To understand the basic concept of prudential management in banks
2. To expose the various regulatory framework and guidelines for banks in India

Course Outcomes:

1. To understand and appreciate the various prudential banking practices in India
2. To acquire required knowledge and demonstrate skill sets to apply the prudential norms.

Methodology:

Exercise, Case studies, Assignments and mini projects

Unit- I: Introduction:

Basel Committee - RBI Good Governance Policies and Practices - Risk Management Process in Banks - Risk Organization and policy – Important risks in commercial banks – Regulatory Framework and RBI guidelines – Bank risk management policy – Risk Management Committee – Role of Board of Directors.

Unit- II: Asset Liability Management in Banks:

Bank balance sheet – Financial margin – Liquidity and Interest rate risk – Interest rate sensitivity - ALM Information System – ALM organization and ALM process, risk parameter, identification, measurement, management and tolerance levels.

Unit- III: Asset Quality:

Credit Appraisal and Loan Pricing - Income Recognition and Asset Classification and Provisioning norms – RBI guidelines – Role of Board of Directors and RBI guidelines – NPA Management – Recovery policies and strategies of Banks – Modes of Recovery - Role of Asset Reconstruction Companies.

Unit- IV: Capital Adequacy:

Basel Committee Norms for Capital Adequacy - RBI norms for capital adequacy – Regulatory capital – Capital charge for credit risk and market risk – Calculation of total risk weighted assets to capital ratio – Risk weights for credit risk – Off balance sheet items - Reporting requirements and actions.

Unit- V: Exposure Norms:

Exposure Norms for Credit – Single and group borrowers – exposure for various products – consortium arrangements – types of exposure and prudential limits – Emerging trends in prudential norms – Case studies

Text and Reference Books:

1. Sant, R.K., Managing Non Performing Assets by Public Sector Banks.
2. Ramachandra Reddy B., Management Of Non-Performing Assets In Banks And Financial Institutions.
3. Srivastava Ashish, Effectiveness of Prudential Regulations for Banks: Global Perspective and Indian Context, Eliva Press.
4. Mathias Dewatripont, The Prudential Regulation of Banks, The MIT Press.
5. IFSCA, The IFSCA Banking Handbook: Prudential Directions.

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	2	2	2	2	3	2
C02	3	3	3	3	3	3	2	3
Avg	2.5	3	2.5	2.5	2.5	2.5	2.5	2.5

**SOFTCORES FINANCE SEMESTER
MBAB X54: SUSTAINABLE FINANCE**

Softcore: 3 Credits

Prerequisites: Basic understanding on Financial system

Course Objectives:

1. To provide basic principles for managing Sustainable Finance
2. To create a forum of shared learning for managers to understand both the challenges and opportunities around sustainable finance and gain exposure to this emerging and exciting field.

Course Outcome:

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

Methodology:

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

Unit I: Introduction

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

Unit II: Risk Assessment

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

Unit III: Green Investment

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

Unit IV: Green Assets Management

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

Unit V: ESG & International Developments

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

Text & Reference Books:

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

CO-PO MAPPING

	P01	P02	P03	P04	P05	PS01	PS02	PS03
C01	2	3	2	2	2	2	3	2
C02	3	3	3	3	3	3	2	3
Avg	2.5	3	2.5	2.5	2.5	2.5	2.5	2.5