

**MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB**  
(Formerly West Bengal University of Technology)  
**Syllabus for BBA (Business Analytics)**  
(Effective for Students Admitted in Academic Session 2019-2020)

**Curriculum Structure**

**SEMESTER – I**

<b>S.No.</b>	<b>Level of Course</b>	<b>Title of the Course</b>
1	Foundation Compulsory	English
2	Foundation Compulsory	Information Technology for Business Analytics
3	Foundation Compulsory	Business Economics
4	Foundation Compulsory	Financial Accounting
5	Foundation Compulsory	Business Mathematics
6	Foundation Compulsory	Indian Business Environment
7	Core Skill Building	Semester End Viva- Voce

**PROFESSIONAL COMPETENCY DEVELOPMENT COURSES**

<b>S.No.</b>	<b>Level of Course</b>	<b>Title of the Course</b>
1	Foundation Elective Skill Based	Outbound Training Program (OBT)

**Note: credits of Professional Competency Development courses will be added in the 6<sup>th</sup> Semester only.**

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**SEMESTER – II**

S.No.	Level of Course	Title of the Course
1	Foundation Elective	Special English
2	Foundation Compulsory	Principles and Practice of Management
3	Core	Business Research Methodology
4	Core	Excel VBA
5	Core	Business Statistics – I
6	Core	Data Structures with C++
7	Core Skill Building	Semester end Viva Voce

**PROFESSIONAL COMPETENCY DEVELOPMENT COURSES**

S.No.	Level of Course	Title of the Course
1	Foundation Elective Skill Based	Book review
2	Foundation Elective Value Based	Introduction to Gandhian Thoughts

**Note: credits of Professional Competency Development courses will be added in the 6<sup>th</sup> Semester only**

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**SEMESTER – III**

S.No.	Level of Course	Title of Course
1	Foundation compulsory	Indian Heritage and Culture
2	Core	Database Management Systems
3	Core	Business Statistics – II
4	Core	Human Resource Management
5	Core	Decision Support Systems with MS Excel
6	Core	Marketing Management
7	Core Skill Building	Minor Project
8	Core Skill Building	Semester End Viva

**PROFESSIONAL COMPETENCY DEVELOPMENT COURSES**

S.No.	Level of Course	Title of the Course
1	Foundation Elective Skill Based	Business English Certificate (BEC)
2	Foundation Elective Value Based	Yoga and Meditation

**Note: credits of Professional Competency Development courses will be added in the 6<sup>th</sup> Semester**

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**SEMESTER – IV**

<b>S.No.</b>	<b>Level of Course</b>	<b>Title of the Course</b>
1	Foundation compulsory	Environmental science
2	Core	Data warehousing and OLAP
3	Core	Operations Research
4	Core	Predictive Analytics and Decision Making
5	Core	Introduction to R
6	Core	Financial Management
7	Core skill building	Semester end Viva Voce

**PROFESSIONAL COMPETENCY DEVELOPMENT COURSES**

<b>S.No.</b>	<b>Level of Course</b>	<b>Title of the Course</b>
1	Foundation Elective Skill Based	Public Speaking
2	Foundation Elective Skill Based	Soft Skills

**Note: Professional Competency Development course credits will be added in the 6<sup>th</sup> Semester**

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**SEMESTER – V**

<b>S.No.</b>	<b>Level of Course</b>	<b>Title of the Course</b>
1	Core	Programming with Java
2	Core	Production and Operations Management
3	Core	Data Visualization
4	Core	Data Mining
5	Core	Statistical Quality Control and Six Sigma
6	Core	Project Management
7	Core Skill Building	Minor Project
8	Core Skill Building	Semester End Viva Voce

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**SEMESTER – VI**

S.No.	Level of Course	Title of the Course
1	Core	Big Data Analytics
2	Core	Ecommerce
3	Core	Business Analysis
4	Core	Data Analysis with Python
5	Elective Discipline centric	Elective 1
6	Elective Discipline centric	Elective 2
7	Core Skill Building	Semester End Viva Voce

Note : student shall choose two out of eight discipline electives

**LIST OF FOUNDATION ELECTIVE (PROFICIENCY DEVELOPMENT) COURSES**

S.No.	Title of the Course
1.	Out-Bound Training
2.	Book Review
3.	Introduction to Gandhian Thoughts
4.	Public Speaking
5.	Yoga and Meditation
6.	Business English Certificate (BEC)
7.	Soft Skills

**Note: The student has to secure five credits out of total seven credits**

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**List of Electives (student has to choose two courses only)**

<b>Course Name</b>
Web and Social Media Analytics
Logistics and Supply Chain Analytics
Financial Analytics
HR Analytics
Healthcare Analytics
Econometrics
Marketing Metrics
Elements of Actuarial Science

## **SEMESTER - I**

### **BBA(BA) – I SEMESTER ENGLISH**

#### **INTRODUCTION**

Literature is the study of human nature. Reading of Literature influences human emotions and behavior. There is more to a person than what is displayed on the exterior. Literature also allows one to question prominent beliefs and examine lives, giving them deeper meaning. Literature is said to be the mirror of a person's behavior. Reading literature sensitizes students to major issues facing society and the world through a critical reading of literary pieces in relation to their milieu.

#### **OBJECTIVES**

Reading literature isn't just about learning about the works themselves, but also about learning how the world works. Through the exploration of literature, students have the opportunity to put themselves in others' shoes, giving them the chance to see how people are connected and better understood and the complex dynamic of the human relationship.

#### **LEARNING OUTCOMES**

- 1) interact with academic content: reading, writing, listening, speaking;
- 2) demonstrate ability to think critically;
- 3) utilize information and digital literacy skills; and
- 4) demonstrate behavior and attitudes appropriate to a university environment.

#### **SYLLABUS**

##### **UNIT-I:**

##### **PROSE**

1. An Astrologer's Day-RK Narayan
2. The Gift of Magi-O'Henry
3. Education: Indian and American-Anurag Mathur
4. Speech on Indian Independence-Jawaharlal Nehru
5. A Talk on Advertising-Herman Wouk

##### **UNIT-II:**

##### **POETRY**

1. Bangle-Sellers-Sarojini Naidu
2. Stopping by Woods on a Snowy Evening-Robert Frost
3. Sonnet „No-29“-William Shakespeare
4. The World Is Too Much With Us-William Wordsworth
5. The Wild Swan-W.B. Yeats

##### **UNIT-III:**

##### **Short Stories**

1. The Umbrella-Guy De Maupassant
2. The Lament-Anton Chekhov



3. The Fly-Katharine Mansfield
4. A Rose for Emily-William Faulkner
5. The Barber's Trade Union-Mulk Raj Anand

**UNIT-IV:**

**Literature and Contemporary Issues**

1. The Globalized World – Avinash Jha.
2. Globalization and Education: Third World Experience – Amit Bhaduri.
3. Forests and Settlements - Romila Thapar
4. Riches-Ramachandra Guha
5. Sharing the World –Amartya Sen

**UNIT-V:**

Grammar

Book/Film Review

**TEXT BOOK**

Will be compiled by Faculty

**REFERENCE BOOKS**

1. Gupta, Nilanjana (2011), *English for All*, New Delhi: Mac Millan Publishers India Limited.
2. Gunter Gerngross and Herbert Puchta (2013), *Playway to English*, Cambridge University Press.

**BBA(BA) – I SEMESTER**  
**INFORMATION TECHNOLOGY FOR BUSINESS ANALYTICS**

**INTRODUCTION**

Business analytics refers to the skills and technologies for exploring and investigating large amount of data to attain new insights that will help an organization to gain a competitive edge. The amount of data available has become even more with the emergence of internet. Analyzing large amount of data requires considerable knowledge in tools such as information technology, internet usage for business and analytical software such as MS Excel.

**OBJECTIVES**

- 1) To acquaint the students with different IT tools
- 2) To acquaint the students with different aspects of Internet
- 3) To give hands on experience in working with MS Excel

**LEARNING OUTCOMES**

At the end of this course the student will

- 1) Understand different elements of information technology
- 2) Understand how internet is used for business advantage
- 3) Perform basic operations in MS Excel

**SYLLABUS**

**UNIT-I:**

**Information Technology:** Definition, Elements of IT – Computer System – Characteristics, Classification of Computers, Components of Computer – Input Devices, Output Devices, Types of Memories, Software – System Software, Application Software, Network Concept, Network Topologies, Types of Network – LAN, MAN, WAN, Internet, Intranet, Extranet.

**UNIT-II:**

**Internet in Business:** Web 2.0 – An Overview, Search Engines, Social Networking, Blogs, Wikis, Virtual Communities, Video Sharing, Podcasting, Web 2.0 for Business advantage. Internet Security - Privacy Issues in Internet, Security Threats, Security Measures

**UNIT-III:**

**MS Excel:** Uses of Excel, Working with MS Excel Workbook, Worksheet Management, Sorting, Filters, Conditional Formatting, Inserting Charts

**UNIT-IV:**

**Excel Range and Formulas – Range – Naming range, Building basic formulas, Creating advanced formulas, Using range names in formulas, Troubleshooting formulas**

**UNIT-V:**

**Working with Excel Functions:** Text Functions, Logical and Information Functions, Lookup Functions, Date and Time Functions, Math and Statistical Functions, Database Functions

### **TEXT BOOK**

Mcfedries, P. (2013), *Excel 2013 Formulas and Functions*, New Delhi: Pearson Education.

### **REFERENCE BOOKS**

1. Curtin, D. P. (2012), *Information Technology – The Breaking Wave*, New Delhi: Tata Mc Graw Hill.
2. Hurt-Davis, G. (2012), *How to do everything with Microsoft Office Excel*, New Delhi: Tata McGraw Hill.
3. Stewart, K. (2012), *Microsoft Excel: A Professional Approach*, New Delhi: Tata McGraw Hill.
4. Jelen. B., & Alexendar, M. (2013), *Excel 2013- PivotTable Data Crunching*, New Delhi: Pearson Education.

**BBA(BA) – I SEMESTER  
BUSINESS ECONOMICS**

**INTRODUCTION**

In today's competitive business environment, effective managerial decision making requires use of economic concepts and tools. Business efficiency depends on minimization of cost and maximization of production which requires perfect understanding of the economic concepts like demand, supply, production, cost and market conditions. Managerial economics uses economic concepts and principles by emphasizing on demand analysis, production & cost analysis and different market structures which are fundamental for further study. This course also introduces important macroeconomic concepts which are indispensable for understanding the functioning of an economy.

**OBJECTIVES**

- 1) To understand the key economic concepts which are used for effective decision making.
- 2) To understand and apply demand and supply analysis to business decisions.
- 3) To know the basics of market morphology and identify the different market structures.
- 4) To understand basic macroeconomic concepts which are relevant to business environment.

**LEARNING OUTCOMES**

**On completion of this course the student**

1. Will be able to apply Economic Concepts for Business Decision Making
2. Would be able to apply the market forces in Decision Making
3. The student will get acquainted with the Different Markets and the Pricing Decisions.
4. To illustrates how macro economics contributes to business management.

**SYLLABUS**

**UNIT-I:**

**Economics** - Introduction, Managerial Economics scope, importance of Managerial Economics.

**UNIT-II:**

**Demand and Supply Analysis:** Demand, meaning, determinants, Law of Demand, demand schedule, supply - meaning, determinants of supply, determination of equilibrium using demand and supply, elasticity of demand, types of elasticity, demand forecasting, Methods of demand forecasting.

**UNIT-III:**

**Production and Cost Analysis:** Production - meaning, production function, one variable production function (Short Run), Isoquants (Long Run), Cost concepts, economic costs, deriving cost curves, short run cost functions, long run cost functions, economies of scale.

**UNIT-IV:**

**Market Structure** - Basis for classification of market power, kinds of competitive market, price and output decisions in perfect competition and imperfect market, Monopoly, Monopolistic, Oligopoly market- Market Failures and Externalities.

**UNIT-V:**

**Macroeconomics**- National Income-Concepts of national income, methods of calculating national income- Monetary Policy- Fiscal Policy- Inflation-causes-demand pull and cost push inflation, measures to control inflation, business cycles -phases of business cycles and measures to control business cycles.

**TEXT BOOK**

Geetika, P.Ghosh, P.R.Choudhury (2014), *Managerial Economics*, New Delhi: McGraw Hill Education Private Limited.

**REFERENCES**

1. Yogesh Maheswari (2014), *Managerial Economics*, New Delhi; Prentice Hall.
2. Dominick Salvatore (2014), *Managerial Economics, Seventh Edition, Adapted Version*, New Delhi : Oxford Publication.
3. Paul G. Keat, Phili K. Y. Young, Sreejata Banerjee (2012), *Managerial Economics*, New Delhi : Pearson.

**BBA(BA) – I SEMESTER**  
**FINANCIAL ACCOUNTING**

**INTRODUCTION**

Accounting is aptly called the language of business. This designation is applied to Accounting because it is the method of communicating business information. The basic function of any language is to serve as a means of communication. Accounting duly serves this function.

**OBJECTIVES**

- 1) To equip the students with knowledge of fundamentals of Financial Accounting systems
- 2) To make students proficient in the application of Financial Accounting techniques.

**LEARNING OUTCOMES**

At the end of this course the student is expected to

- 1) Analyze a company's financial statements and come to a reasoned conclusion about the financial situation of the company.
- 2) Use accounting and business terminology, and understand the nature and purpose of generally accepted accounting principles (GAAP).
- 3) Explain the objective of financial reporting, the elements of the financial statements, and the related key accounting assumptions and principles.

**SYLLABUS**

**UNIT-I:**

**Nature and Scope of Financial Accounting and Systems:** Principles - Accounting Concepts and conventions - Accounting Cycle – Double Entry System – Accounting equation - Preparation of Journals – Preparation of Ledgers.

**UNIT-II:**

**Subsidiary books** – Types of Subsidiary Books - Cash Book – Types of cash book – Preparation of Triple Column Cash Book. (NP)

**UNIT-III:**

**Trial Balance:** Meaning of Trial Balance - Preparation of Trial Balance - Types of Errors – Suspense Account. (NP)

**UNIT-IV:**

**Preparation of Final Accounts** – Trading Account – Profit and Loss Account - Balance Sheet – Treatment of Adjustments- (NP)

**UNIT-V:**

**Bank Reconciliation Statement (BRS):** Introduction and Significance of BRS - Pass Book – Cash Book – Causes for difference between cash book and pass book- Preparation of Bank Reconciliation Statement. (NP)

**TEXT BOOK**

Mukharjee and Hanif (2013), *Financial Accounting*, New Delhi: Tata Mc-Graw Hill

**REFERENCE BOOKS**

1. Maheswari S.N & Maheswari S.K, *Introduction to Financial Accounting*, New Delhi: Vikas Publishing House.
2. Tulsian P.C. (2011), *Financial Accounting, Volume I and Volume II*, New Delhi: Pearson Education.

**BBA(BA) – I SEMESTER**

**BUSINESS MATHEMATICS**

**INTRODUCTION**

The course is designed to understand and acquire knowledge and skills in Basic Mathematics for solving business problems

**OBJECTIVES**

- 1) To provide practice in the handling of business problems that deal with day-to-day transactions encountered by business administrators
- 2) To use the results of mathematical calculations to help evaluate various options in reaching financial decisions, whether personal or business-related.

**LEARNING OUTCOMES**

At the end of the course the students will be

- 1) Familiarized with the nature of business problems
- 2) Able to analyze and take business decisions in day to day transactions.

**SYLLABUS**

**UNIT-I:**

**Basic Mathematics** -Theory of Indices: Definition, types of indices, properties of indices, basic problems on indices. Equations: Types of equations, linear, simultaneous equations and Quadratic equations with one variable. Permutations and Combinations: Definition, basic problems on permutations and combinations.

**UNIT-II:**

**Matrix Algebra** -Definition, types of matrices, Scalar Multiplication of Matrix, Equating of Matrices, Matrix operations: Addition, Subtraction and Multiplication; Transpose of Matrix, Determinant of matrix, Inverse of Matrix, Solving of Equations by Cramer's Rule, Matrix Inversion method.

**UNIT-III:**

**Elementary Calculus** -Differentiation: Definition, rules of differentiation, partial differentiation of first and second order, maxima & minima. Integration: Definition, some standard rules of integration, integration by substitution, integration by parts.

**UNIT-IV:**

**Application of Calculus** -Elasticity of demand, Average revenue, Marginal revenue, Average cost, Marginal cost, Total cost, Consumer's surplus, Producer's surplus, Maximum revenue, Minimum Cost, Maxima & Minima in perfect competition and monopoly, Effects of taxation and subsidy on monopoly.

**UNIT-V:**

**Mathematics of Finance** -Simple interest, Compound interest, Annuity, Concept of present value and amount of sum, types of annuities, present value and amount of an



annuity immediate, sinking fund.

**Problems will be given from all the units.**

**Note:**

1. Proofs of theorems and derivations of formulae are excluded.
2. Trigonometric functions, Inverse Trigonometric functions and Hyperbolic functions are excluded.

**TEXT BOOK**

R.C.Joshi (2013), *Business Mathematics*, Jalandhar: New Academic Publishing Co.

**REFERENCE BOOKS**

1. J.K Singh (2013), *Business Mathematics*, Mumbai: Himalaya Publishing House.
2. Dr.Amarnath Dikshit & Dr. Jinendra Kumar Jain (2011.), *Business Mathematics*, Mumbai: Himalaya Publishing House.
3. Dr.C.Sancheti and V.K.Kapoor (2012), *Business Mathematics*, New Delhi: Sultan Chand & Sons.

**BBA(BA) – I SEMESTER  
INDIAN BUSINESS ENVIRONMENT**

**INTRODUCTION**

The business environment in India is undergoing a dynamic change; what was looked upon as an underdeveloped nation is now regarded as a potential economic power, struggling to take strides in the service industry, providing multinational companies with unparalleled opportunities. With liberalization and privatization taking place in almost all major sectors of the economy, the nature and extent of the role of the state is undergoing fundamental changes; these are excellent portents. In this changing environment of search gigantic dimensions, this course is aimed at sensitizing the students to the value of implications of environment on business in general. Though any business is an economic activity, business ethics and social responsibilities of business are introduced in this course

**OBJECTIVES**

- 1) To make the students understand different facets of Indian Business Environment
- 2) To enable them to apply the unique advantages offered by Indian Business Environment and improve upon its shortcomings.

**LEARNING OUTCOMES**

- 1) To familiarize students with the nature of business environment and its components.
- 2) To facilitate students to develop conceptual framework of business environment and generate interest in international business.

**SYLLABUS**

**UNIT-I:**

**Indian Business Environment** – meaning and definition- salient features- significance of business and Environment-Internal factors and external factors of business environment- Political environment-Economic environment-Social environment-Technological environment

**UNIT-II:**

**Planning in India and Industrial Policy:** Objectives of Planning in India –XII Five Year Plan (2012-17) - Meaning and Objectives of Industrial Policies – Industrial Policy of 1948, 1956, 1991 – Open economy-Impact of Liberalization, Privatization and Globalization on business environment after 1991

**UNIT-III:**

**Monetary and Fiscal Policy :** Monetary Policy and its objectives - CRR and SLR – Impact of the Monetary Policy on business – RBI's Monetary Policy Measures – Fiscal Policy and its objectives -Techniques of Fiscal Policy – Differences between Monetary Policy and Fiscal Policy

**UNIT-IV:**

**Social & Technological Environment:** Poverty: Concept, Meaning, and Definition of Poverty – Causes of Poverty in India – Unemployment: Concept , Meaning, and Types of

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Unemployment – Factors Responsible for Unemployment - Human Development – Rural Development – Problems of growth – Impact of Technology on Business

**UNIT-V:**

**Ecological and Legal Environment:** Global Warming, Industrial Pollution and its Regulation- FERA- FEMA- Competition Act.

**TEXT BOOK**

Francis Cherunilam (2014), *Business Environment: Text and Cases*, Mumbai: Himalaya Publishing House.

**REFERENCE BOOKS**

1. Pual, Justin, *Business Environment Text and Cases*, New Delhi: Tata McGraw Hill.
2. Worthington, Ian and Britton, Chris , *The Business Environment*, New Delhi: Pearson Education Ltd.
3. A.C.Ferndo (2016), *Indian Economy*, New Delhi: Pearson Education Ltd.
4. Ruddardatt and K.P.M. Sundaram (2013), *Indian Economy*, New Delhi: S. Chand & Co., Ltd.
5. Dr.K.Aswhathappa (2014), *Essentials of Business Environment*, Mumbai: Himalaya Publishing House.

**BBA(BA) – I SEMESTER**  
**OUT-BOUND TRAINING (OBT)**

**INTRODUCTION**

*Alone we can do so little; together we can do so much. ~ Helen Keller*

In today's corporate world, developing teamwork skills in the workplace has become a necessity. Teamwork is one of the most important essence of a successful organization. Absence of teamwork can lead to a lot of problems in the organization. It has been observed by organizations and institutions that working as teams gives better results than working individually. Effective teamwork brings success to the entire team and organization as well. Henry Ford - one of the legends of automobile industry said, "If everyone is moving forward together, then success takes care of itself".

Working as a team, to successfully achieve the goals and objectives, requires effective team communication strategies. Teamwork includes communication, understanding and coordination among team members along with mutual trust.

In a team, every individual's contribution is important. Everyone has something to contribute. But in a good team, every individual gives for the cause of the team. A team depends as much on individual creativity as it does on collective thought.

**LEARNING OBJECTIVES**

1. To appreciate the importance of working in teams
2. To be able to identify one's own strengths and weaknesses and use for self-development
3. Becoming an effective team member
4. Improving interpersonal communication skills

**ACTIVITY STRUCTURE**

Team building activities make it possible for everyone in the team to participate and allow them to better understand each other's strengths and weaknesses. To enhance and appreciate teamwork, students would be divided into teams and various activities will be conducted. The activities will be conducted over a three day period at a location outside the Institute. An external agency will be deputed to conduct these activities and assess the student on various parameters.

The total assessment would be for 50 marks.

## **SEMESTER – II**

### **BBA(BA) – II SEMESTER SPECIAL ENGLISH**

#### **INTRODUCTION**

Linguistics is the scientific study of human language. It has got several branches. Phonetics is that branch of linguistics which deals with the study of speech sounds or phonemes in general. Phonemes are smallest units of speech sounds. They are not meaningful by themselves. But they can bring about change in meaning. Phonemes are combined into larger meaningful units called morphemes.

#### **OBJECTIVES**

- 1) To enable students to get familiarized with the sounds and symbols of English.
- 2) To enable students to apply the basics of phonetics and grammar for effective conversation.

#### **LEARNING OUTCOMES**

- 1) The student learns the basics of English phonetics and pronunciation, speech rhythm and intonation
- 2) The student also grasps the essentials of grammar and vocabulary, leading to effective communication skills.

#### **SYLLABUS**

**UNIT-I:** Basics of Phonetics

**UNIT-II:** Word Stress

**UNIT-III:** Intonation

**UNIT-IV:** Applied grammar and usage –Subject Verb agreement-Correct uses of tenses-types of clauses -Tag questions-Correct usage of punctuation marks

**UNIT-V:** Vocabulary - The importance of vocabulary in language.-2)Word formation techniques (3) Technical words, phrasal verbs, idiomatic usages, one word substitutions, homonyms, homophones, eponyms .

#### **TEXT BOOK**

Text Book will be prepared by GIM faculty

#### **REFERENCE BOOKS**

1. Mark Hancock (2013), *English in Use*, Cambridge University Press.
2. Gunter Gerngross and Herbert Puchta (2013), *Playway to English*, Cambridge University Press.

**BBA(BA) – II SEMESTER**  
**PRINCIPLES AND PRACTICE OF MANAGEMENT**

**INTRODUCTION**

One of the most important human activities is managing. Management, in fact can be traced back to the ancient times whenever there was large scale endeavor like great pyramids in Egypt, Great Wall of China, Taj Mahal in India. All these required a large number of people working in groups in a better coordinated way to achieve a well defined target over a period of time.

In the present context, of globalization, because of increasing role of large and complex organizations for the development of economy, the concept of management has become very significant for managing the business efficiently.

**OBJECTIVES**

- 1) To enable the students to understand the fundamental principles of management
- 2) To enable students to apply the practices of management

**LEARNING OUTCOMES**

- 1) After completing the course the student will be able to understand and explain the concept of management and its managerial perspective.
- 2) It will equip students to map complex managerial aspects arising due to ground realities of an organization.
- 3) They will gain knowledge of contemporary issues in management and various approaches to resolve those issues

**SYLLABUS**

**UNIT-I:**

**Management:** Nature, Concept, Scope and Significance; Functions; Management: Art or Science or Profession, Organization Vs. Administration Vs. Management, Schools of Management: Contributions of F.W. Taylor, Henry Fayol, Elton Mayo; Roles of Managers; Social Responsibility and Business Ethics.

**UNIT-II:**

**Planning:** Concept, Objectives, Types, Steps and Techniques; Making Planning Effective; Decision Making: Steps in Decision Making and Types; Management by Objectives (MBO).

**UNIT -III:**

**Organizing:** Structure, Nature, Types of Organisations, Principles of Organising, Departmentalisation, Delegation, and Decentralisation of Authority, Span of Control - Line and Staff Functions. Staffing: Concept, Significance and Functions.

**UNIT-IV:**

**Leading:** Introduction, Characteristics of a Leader, Functions of a Leader, Leadership and Management, Principles of Leadership, Styles of Leaders

**UNIT-V:**

**Controlling:** Introduction, Concept of Controlling, Purpose of Controlling, Types of Control, Steps in Controlling, Techniques in Controlling

**Case Analysis** (Not exceeding 250 words).

### **TEXT BOOK**

Harold Koontz & Heinz Weirich (2012), *Management, a Global and Entrepreneurial Perspective*, New Delhi: Tata McGraw Hill Publishing company.

### **REFERENCE BOOKS**

1. Dipak Kumar Bhattacharyya (2012), *Principles of Management Text and Cases*, New Delhi: Pearson.
2. Balasubrahmanian. N. (2012), *Management Perspectives*, New Delhi: Mac Millian India Ltd.
3. Charles Hill, Steven Mc Shane (2012), *Principles of Management*, New Delhi: Tata McGraw Hill.
4. Ricky W. Griffin . (2012), *Management*, New Delhi: Cengage Learning.
5. Terry and Franklin. (2011), *Principles of Management*, New Delhi: AITBS Publishers.
6. Robert Kreitner. (2012), *Principles of Management*, New Delhi: Cengage South-Western 12 E

**BBA(BA) – II SEMESTER**  
**BUSINESS RESEARCH METHODOLOGY**

### **INTRODUCTION**

Research methodology is the systematic and scientific method of how to review and research a topic. It starts with identification of the problem and continues with sample design, data collection, analysis and report. It is extensively used to find a solution to a problem and enhance knowledge. Continuous growth is one of the key challenges for business, which needs innovative ideas and solutions to stagnation in growth. Research is a valuable tool for businesses to identify potential avenues for growth and solutions to problems. Understanding the methodology to be adopted when researching is, therefore very crucial for businesses.

### **OBJECTIVES**

- 1) To enable the students to get familiarize with the concepts of Research Methodology
- 2) To acquaint the students with the techniques of Research Methodology which are applicable to business arena

### **LEARNING OUTCOMES**

At the end of the course, the student will

1. Be able to interpret, define and formulate research problems and, formulate hypotheses that can be tested
2. Get exposure to critical analysis, problem solving and research skills
3. Understand the rationale for using a particular qualitative and quantitative research method
4. Understand and apply a range of methods and to be able to decide on appropriate research designs and methods to investigate their chosen research problems

### **SYLLABUS**

#### **UNIT-I:**

**Introduction** - Meaning, Importance of Research, Types of research, Research Process- Problem of Identification-Formulation-Classification, Concept and Construction of Hypothesis- Steps in Testing Hypothesis.

#### **UNIT-II:**

**Research Design** - Meaning, Purpose and Principles –Types of Research Design- Exploratory – Descriptive – Experimental; Sampling & Sampling Designs - Determination of Sample Size- Census Survey Vs Sample Survey-Advantages of Sampling – Sampling Methods-Probability Sampling-Non Probability Sampling.

#### **UNIT-III:**

**Data Collection** - Sources of Data - Methods of Data Collection – Questionnaire, Interview, Observation and Schedule; Sources of secondary data; Questionnaire Design and Pre Testing of Questionnaire.



**UNIT-IV:**

**Data Tabulation** - Analysis and Interpretation: Editing, Decoding and Classification of Data-Preparation of Tables-Analysis of Data - Scaling Techniques - Graphic and Diagrammatic Representation of Data, Non-Parametric tests – Run test, Kolmogorov Smirnov test, Chi-Square test, one sample sign test, Man Whitney U Test.

**UNIT-V:**

**Research Analysis and Report Writing:** Multiple Regression (General Linear Model), Principals of Component Analysis, Discriminate Analysis –Factor Analysis- Types of Reports- Contents of Report-Formats of Reports-Presentation of Reports.

**TEXT BOOK**

Kothari, C.R. (2012), *Research Methodology – Methods and Techniques*, New Delhi: New Age International Publishers.

**REFERENCE BOOKS**

1. Boyd, H. W., Westfall, R. L., & Stasch, S. F. (2010), *Marketing Research: text and cases*, New Delhi: All India Travel Book Sellers.
2. Bryman, A. (2010), *Social Research Methods*, New Delhi: Oxford University Press.
3. Krishnaswami, O.R. (2011), *Methodology of Research in Social Sciences*, Mumbai: Himalaya Publishing House.

## **BBA(BA) – II SEMESTER EXCEL VBA**

### **INTRODUCTION**

Microsoft Excel is a powerful spreadsheet package which is designed to perform different kinds of analysis and calculations. The computing and analytical power of Excel can be further improved by adding programming capabilities of visual basic. Excel with Visual Basic helps in creating customized functions and interactive sheets.

### **OBJECTIVES**

- 1) To acquaint the students with the concept of macros
- 2) To provide hands on experience in working with Excel VBA.

### **LEARNING OUTCOMES**

At the end of the course, the student will be able to

- 1) Use visual basic with Microsoft Excel
- 2) Build macros using Excel VBA
- 3) Build customized forms using Excel VBA

### **SYLLABUS**

#### **UNIT-I:**

**Introduction to VBA:** Concept of Macros, Need for VBA, Getting familiarized with Visual Basic Editor, VBA Programming Language – Variables and Constants, Data Types, VBA Operators, Control Structures

#### **UNIT-II:**

**Functions and Subroutines:** Calling functions and subroutines, Passing arguments, Public and Private procedures, Built-in Functions – MsgBox functions, Inputbox functions, String functions, Date and Time functions

#### **UNIT-III:**

**Excel Objects:** Excel Object Model, The workbook Object, The Worksheet Object, The Range Object

#### **UNIT-IV:**

**Excel Events:** Concept of Event, EnableEvents Property, Worksheet Events, Workbook Events, Error Handling in VBA.

#### **UNIT-V:**

**Custom Forms** – Creating UserForm object, Working with Active X Controls, Working with Excel Standard Controls, Working with Menus

### **TEXT BOOK**

Roman, S. (2014), *Writing Excel Macros with VBA*, Mumbai: O'Reilly - Shroff Publishers & Distributors Pvt. Ltd.

**REFERENCE BOOKS**

1. Trehan, K. (2013), *Excel VBA for Managers*, Mumbai: Shroff Publishers and Distributers.
2. Walkenbach, J. (2012), *Excel 2007 VBA Programming for Dummies*, New Delhi: Wiley India
3. Shepherd, R. (2012), *Excel 2007 VBA Macro Programming*, New Delhi: Tata McGraw Hill.

**BBA(BA) – II SEMESTER  
BUSINESS STATISTICS - I**

**INTRODUCTION**

Business Statistics is important, for future managers, to have a firm understanding of the basics of statistics and its application to analyze and create an edge for the business.

**OBJECTIVES**

- 1) To enable the students to develop basic knowledge in Statistics
- 2) To provide understanding in some basic statistical techniques which are used for solving business problems.

**LEARNING OUTCOMES**

At the end of the course, the student will

- 1) Understand the measurement systems variability
- 2) Find relationship between two quantitative variables
- 3) Measure relative changes in price, production or any such quantities of economic interest

**SYLLABUS**

**UNIT-I:**

**Measures of Central Tendency:** Introduction, Arithmetic mean, median, mode, geometric mean, harmonic mean

**UNIT-II:**

**Measures of Dispersion:** Introduction, Range, Quartile deviation, Mean deviation, Standard deviation, combined mean and combined standard deviation.

**UNIT-III:**

**Correlation Analysis:** Introduction, types of correlation, Methods of Correlation analysis, Scatter diagram method, Karl Pearson's correlation coefficient, Coefficient of determination, Spearman's rank correlation coefficient.

**UNIT-IV:**

**Regression Analysis,** Introduction, Types of regression models, Significance of Regression Analysis, Methods of finding Regression Equations, Least Squares and Using Regression Coefficient methods, Prediction using the Regression Equations.

**UNIT-V:**

**Index numbers**, Introduction, Characteristics and Uses of index numbers, Types of Index Numbers, Laspyre, Paasche's, Fisher's Marshall, Edgeworth, Dorbish and Bowley, Limitations of index numbers.

**Note:** Proofs of theorems and derivations of problems and distributions are excluded.

**TEXT BOOK**

**MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB**  
(Formerly West Bengal University of Technology)  
**Syllabus for BBA (Business Analytics)**  
(Effective for Students Admitted in Academic Session 2019-2020)

Sharma, J. K. (2013), *Business statistics*, New Delhi: Pearson Education.

**REFERENCE BOOKS**

1. Gupta, S.C. & Gupta, I. (2012), *Business Statistics*, Mumbai: Himalaya Publishing House.
2. Levine, D.M., Berenson, M. L. & Stephan, D. (2012), *Statistics for managers using Microsoft Excel*, New Delhi: Prentice Hall India Pvt.
3. Aczel, A. D. & Sounderpandian, J. (2011), *Complete Business Statistics*, New Delhi: Tata McGraw Hill.
4. Anderson, D., Sweeney, D., Williams, T., Camm, J., & Cochran, J. (2013), *Statistics for Business and Economics*, New Delhi: Cengage Learning.
5. Davis, G., & Pecar, B. (2014), *Business Statistics using Excel*, New Delhi: Oxford University Press.

**BBA(BA) – II SEMESTER**  
**DATA STRUCTURES WITH C++**

**INTRODUCTION**

Data Structure is a particular way of organizing data in a computer so that it can be used efficiently. Understanding the data structure will help in efficiently managing the data and coming up with effective algorithms. The implementation of data structures are done in C++, one of the most popular object oriented language.

**OBJECTIVES**

- 1) To acquaint the students with the programming concepts of C++
- 2) To acquaint the students with the concept of data structures and its implementation in C++

**LEARNING OUTCOMES**

- 1) Understand the Object Oriented Concepts and its usage
- 2) Write basic programs in C++
- 3) Implement different data structures in C++
- 4) Implement different sorting and searching algorithms

**SYLLABUS**

**UNIT-I:**

**Introduction to C++:** Identifiers and Keywords, Basic Data Types, Variables and Constants, Input and Output Statements, Operators and Expressions, Control Statements, Functions, Recursion, Pointers

**UNIT-II:**

**Introduction to OOP:** Object Oriented Concepts, Classes and Objects, Constructors and Destructors, Inheritance – Single Inheritance, Multiple Inheritance, Protected Keyword, Polymorphism, Data Structures – Basic Concepts, Classification of Data Structures

**UNIT-III:**

**Linear Data Structures:** Arrays - Concept of Array, Types of arrays – Single dimensional, Multi-dimensional, Operations on arrays, Application of arrays, Stacks – Concept, Operations on stack, application on stacks, Queues - Concept, operation on queues, types of queues, application of queues, Linked Lists - Concept, types of linked lists – single, double, circular, applications of linked lists

**UNIT-IV:**

**Non Linear Data Structures:** Trees - Basic terminology, Types of trees – General trees, Forest, Binary Tree, Binary Search tree, Creating binary tree from general tree, traversing a binary tree, application of trees, Graphs - Basic terminology, Directed graph, representation of graph, graph traversal algorithms, Application of graphs

**UNIT-V:**

**Searching and Sorting:** Introduction to searching – Linear search, Binary Search, Sorting – Bubble, Insertion, Selection, Quick, Merge.

**TEXT BOOK**

Akepogu, A.R. & Palagiri, R.R (2010), *Data Structures and Algorithms Using C++*, New Delhi: Pearson Education.

**REFERENCE BOOKS**

1. GoodRich, M.T., Tamassia, R. and Mount, D. (2011), *Data Structures and Algorithms in C++*, New Delhi: Wiley India.
2. Malik, D.S. (2012), *Data Structures Using C++*, New Delhi, Cengage Learning.
3. Weiss, M.A. (2013), *Data Structures and Algorithm Analysis in C++*, New Delhi: Pearson Education.
4. Patil, V.H. (2012), *Data Structures Using C++*, New Delhi: Oxford University Press.

**BBA(BA) – II SEMESTER**  
**BOOK REVIEW**

**INTRODUCTION**

*Reading make a full man; conference a ready man; and writing an exact man – Francis Bacon.*

Communication is the basis of our lives and we would in this day and age, be handicapped without it. Communication is a vital element for successful career in the corporate world. Effective Communication is significant for managers in the organizations so as to perform the basic functions of management. Communication is one of the activities that managers devote a great part of their time. Communication can be improved through extensive reading and writing.

Despite the deep penetrating reach of the visual media, books have a definite edge over other mediums of communication and entertainment. Reading is an activity that is both fun and enlightening. It can help us be more knowledgeable and successful. Reading as a habit has always nurtured a wholesome sense of well-being. Avid readers tend to have a better grasp on realities and are known to be better judges of people. However, it has been seen that, with the advent of technology, reading is an activity that many people don't engage in very much. A national survey in USA revealed that 50% of the population hasn't read a book in the last six months!

Reviewing a book after reading enhances the analytical writing which hones the critical thinking. It assesses the ability to articulate and support complex ideas, construct and evaluate arguments, and sustain a focused and coherent discussion. Written Communication involves expressing oneself clearly, using language with precision; constructing a logical argument; note taking, editing and summarizing and writing reports.

**LEARNING OBJECTIVES**

1. Experience the pleasure and inculcate the habit of reading
2. Enhance the critical thinking ability of the students
3. Develop clarity in evaluating, assessing and arguing a thought
4. Master the art of communicating using good writing skills

**ACTIVITY STRUCTURE**

A general /management book would be given to the student to read. The student is expected to critically analyze, present his/her arguments leading to a conclusion of the writings through this review.

The assessment would be for a total of 50 marks.



**BBA(BA) – II SEMESTER  
INTRODUCTION TO GANDHIAN THOUGHTS**

**INTRODUCTION**

Mahatma Gandhi was a greatest leader in India's freedom struggle. He employed non-violent means to attain independence for India. His ideology and thoughts provides lots of inspiration and learning which can be used even today.

**OBJECTIVES**

- 1) To acquaint the students with the different phases in Gandhi's life
- 2) To acquaint the students with Gandhian ideologies

**LEARNING OUTCOMES**

At the end of the course, the student will

- 1) Get a clear picture of the evolution of M K Gandhi to the "Mahatma".
- 2) Understand the prominent role played by Gandhi in our freedom movement and how his methodologies are significant even today.

**SYLLABUS**

**UNIT-I:**

**M K Gandhi, Formative Years (1869-1893):** Early childhood - study in England - Indian influences, early Western influences

**UNIT-II:**

**Gandhi in South Africa (1893-1914):** South African Experiences - civil right movements in South Africa - invention of Satyagraha - Phoenix settlement- Tolstoy Farm - experiments in *sarvodaya*, education, and sustainable livelihood

**UNIT-III:**

**Gandhi and Indian National Movement (1915-1947):** Introduction of Satyagraha in Indian soil -non-cooperation movement - call for women's participation - social boycott - Quit-India movement - fighting against un-touchability - Partition of India- independence

**UNIT-IV:**

**Application of basic philosophy of Gandhi in daily life:** eleven vows – constructive program – sarvadharm samabhava- sarvodaya

**UNIT-V:**

**Gandhi and Modern day society:** Political, moral and environmental challenges today- application of Gandhian ideologies to resolve these challenges.

**REFERENCE BOOKS**

1. Gandhi, M K., *An Autobiography or The Story of My Experiments with Truth*. Ahmadabad: Navjivan Publishing House.
2. Gandhi, M K., *Satyagraha in South Africa*. Ahmadabad: Navjivan Publishing House.
3. Gandhi, M K., *Constructive Programs*. Ahmadabad: Navjivan Publishing House.

## **SEMESTER – III**

### **BBA(BA) – III SEMESTER INDIAN HERITAGE AND CULTURE**

#### **INTRODUCTION**

In a broad sense culture means anything physical or non-physical which we produce and cultivate. Heritage is something, which we receive from our ancestors. Culture is a product of great forces. This is the peculiarity of Indian culture. It is unique in the world and we Indians are proud of it.

#### **OBJECTIVES**

- 1) To enable the students to have an insight into and understanding of the great heritage and culture of India.
- 2) To sensitize them towards preservation and progression of the same.

#### **LEARNING OUTCOMES**

This course helps students to –

- 1) equip themselves with knowledge about the heritage and culture of India
- 2) apply the same to the managerial sphere.

#### **SYLLABUS**

##### **UNIT-I:**

Fundamental Unity of India-Harappan and Vedic Culture- Evolution of Caste System- Political unification of India under Mauryas and Guptas - Cultural achievements. Cultural conditions under the Satavahanas. Contribution of Pallavas and Cholas to art and letters.

##### **UNIT-II:**

Influence of Islam on Indian Culture- The Sufi, Bhakti and Vishnavite Movements. Cultural achievements of Vijayanagar rulers. Contribution of Shershah and Akbar to the evolution of administrative system in India-Cultural Developments under Mughals.

##### **UNIT-III:**

Western Impact on India- Introduction of Western Education- Social and Cultural awakening and Social reform movements- Raja Ram Mohan Roy- DayanandSaraswati Theosophical Society- Ramakrishna Paramhansa and Vivekananda – Ishwarchander Vidyasagar and Veeresalingam. Rise of Indian Nationalism- Mahatma Gandhi- Non violence and satyagraha.

##### **UNIT-IV:**

Nature and meaning of Culture, the Vedic culture- Upanishadic Culture, ArthaSastra, Culture in Ramayana and Mahabharata.

##### **UNIT-V:**

The culture of Jainism and Buddhism, Vedanta and Indian culture. Religion and ethical practices.

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**TEXT BOOK**

Madanlal Malpani & Shamsunder Malpani (2009), *Indian Heritage and Culture*, New Delhi: Kalyani Publishers.

**BBA(BA) – III SEMESTER**  
**DATABASE MANAGEMENT SYSTEMS**

## **INTRODUCTION**

Each and every organization maintains database related to their business such as employees, customers, products, sales and so on. Database management system is collection of programs that enables to store, modify and extract information from a database. SQL is the *de facto* language for communication with the database and MS Access is a simple and a popular DBMS package from Microsoft which provides the database features in GUI format.

## **OBJECTIVES**

- 1) Understand different concepts in database and database management system
- 2) Understand the importance of transactions in a database
- 3) Gain hands on experience in working with MS Access
- 4) Gain hands on experience in writing queries and procedures in SQL and PL/SQL

## **LEARNING OUTCOMES**

- 1) Perform ER Analysis of a process
- 2) Build database tables from ER diagram
- 3) Normalize a given database
- 4) Perform basic operations in MS Access
- 5) Writes queries and procedures in SQL and PL/SQL

## **SYLLABUS**

### **UNIT-I:**

**Database approach:** Features of database approach, advantages and disadvantages, Components of DBMS, Data Models - Hierarchical, Network, Relational, ER analysis, Attributes and Domains, Integrity Constraints and Keys, Normalization – 1NF, 2NF, 3NF,

### **UNIT-II:**

**Working with MS Access:** Creating Tables, Data Types and Fields properties in MS Access, Creating Relationships, Designing Forms for Data Entry, Queries in MS Access – Simple queries, Cross-tab queries, Reports in MS Access – Simple reports, cross tab reports - using report wizard, using query design

### **UNIT-III:**

**Working with SQL:** DDL statements - Create, Drop, Alter, DML statements , Insert, Select, Delete, Update, Oracle Functions, Join Condition, Set Operators, The Order By Clause

### **UNIT-IV:**

**Working with PL/SQL:** Control Structures, PL/SQL Block, Cursors, Procedures, Functions, Triggers

**UNIT-V:**

**Query Processing and Optimization:** ACID properties, Transaction Processing and Concurrency Control - Database Recovery.

**TEXTBOOK**

Naik, S. (2014), *Concepts of Database Management Systems*, New Delhi: Pearson Education.

**REFERENCE BOOKS**

1. Shah, N (2015), *Database Systems Using Oracle*, New Delhi: Pearson Education.
2. Ullman, J.D. & Widom, J. (2014), *A First Course in Database Systems*, New Delhi: Pearson Education.
3. Pratt, P.J., & Adamski, J.J. (2012), *Concepts of Database Management*, New Delhi: Cengage Learning
4. Juarez, J., & Carter, J. (2010), *Microsoft Access 2007 - A professional approach*, New Delhi: Tata McGraw Hill.

**BBA(BA) – III SEMESTER**  
**BUSINESS STATISTICS – II**

**INTRODUCTION**

Business Statistics is important, for future managers, to have a firm understanding of the basics of statistics and its application to analyze and create an edge for the business.

**OBJECTIVES**

- 1) To enable the students to develop knowledge and understand some basic statistical techniques
- 2) To apply these techniques in solving business problems

**LEARNING OUTCOMES**

- 1) Perform Time series analysis and measure different trends in data series
- 2) Use statistical techniques to solve business problems

**SYLLABUS**

**UNIT-I:**

Time series analysis – Introduction, Components of a time series – Secular trend, Short term, Random or Irregular variations, Measurement of trend – Free hand method, Method of linear Curve fitting by the principle of least squares, Method of Semi - Averages and Moving average.

**UNIT-II:**

Probability – Permutation and Combination, Introduction, Definitions of various terms, Types of probability, Bayes' Theorem.

**UNIT-III:**

Random variable and Probability Distribution – Definition, Probability distribution of discrete and continuous random variable, Mean and Variance.

**UNIT-IV:**

Discrete distribution – Introduction, Binomial distribution, Poisson distribution, Mean and Variance.

**UNIT-V:**

Continuous distribution and Introduction to hypothesis– Normal distribution, Properties of Normal distribution, Area under Standard Normal Probability Curve and Importance of Normal Distribution. Introduction to Hypothesis, Types of Hypothesis, Type – I error and Type – II error.

**Note:** Proofs of theorems and derivations of problems and distributions are excluded.

**TEXT BOOK**

Jaggia / Kelly (2015), *Business Statistics (Indian Edition)*, New Delhi: McGraw Hill

Education.

### **REFERENCE BOOKS**

1. Gupta, S.C. & Gupta, I. (2012), *Business Statistics*, Mumbai: Himalaya Publishing House.
2. Levine, D.M., Berenson, M. L. & Stephan, D. (2012), *Statistics for managers using Microsoft Excel*, New Delhi: Prentice Hall India Pvt.
3. Aczel, A. D. & Sounderpandian, J. (2011), *Complete Business Statistics*, New Delhi: Tata McGraw Hill.
4. Anderson, D., Sweeney, D., Williams, T., Camm, J., & Cochran, J. (2013), *Statistics for Business and Economics*, New Delhi: Cengage Learning.
5. Davis, G., & Pecar, B. (2014), *Business Statistics using Excel*, New Delhi: Oxford University Press.

**BBA(BA) – III SEMESTER**  
**HUMAN RESOURCE MANAGEMENT**

**INTRODUCTION**

The purpose of this course is to provide the students with the basic understanding of the concepts, systems of human resource development in organizations. The turbulent business climate, caused by increased global price competitiveness, changing technologies, changing employment legislations and challenging work force composition is challenging managers to utilize their employees more effectively to gain competitive advantage. In recent years, there have been significant practical developments with increasing numbers of private and public sector organizations adopting HRM initiatives alongside downsizing and reengineering the organization.

**OBJECTIVES**

- 1) To provide an understanding of the strategic importance of managing human resources within an organization.
- 2) To provide an overview of the various functions of the HR management and a range of practices employed by organizations across the globe for building a competitive advantage.

**LEARNING OUTCOMES**

After completion of this course students will be able to –

- 1) understand the various HRM initiatives
- 2) understand and apply these to help in building loyal and committed employees to achieve organizational success in a competitive environment.

**SYLLABUS**

**UNIT-I:**

Introduction: Nature, scope and significance of HRM - Evolution of HRM – Recent trends in HRM – Functions of HRM – Challenges of HR managers

**UNIT-II:**

Procurement: Human Resource Planning – HR Forecasting methods - Job analysis and Job design – Recruitment - Selection – Induction

**UNIT-III:**

Development: Identification of training needs - designing the training program – Methods of training – Difference between Training & Development

**UNIT-IV:**

Compensation and Integration: Introduction - Basic factors in determining pay rates – Basic, Supplementary and Executive Remuneration – types of employee benefits and services - Quality of work life – Collective Bargaining.



**UNIT-V:**

Separation and Maintaining: Communication and Counseling - Safety and Health – Internal mobility - Retirement and Retirement benefits.

Case Let (Not Exceeding 200 Words)

**TEXT BOOK**

Snell, Bohlander and Vohra (2012), *Human Resource Management – A South Asian Perspective*, New Delhi: Cengage Learning.

**REFERENCE BOOKS**

1. Edwin B Flippo (2010), *Personnel Management*, New Delhi: Tata McGraw Hill Publishing.
2. Gary Dessler & Biju Varkkey (2011), *Human Resource Management*, New Delhi: Pearson.
3. P Subbarao (2012), *Human Resource Management*, New Delhi: Himalaya Publishing House.
4. Seema Sanghi (2011), *Human Resource Management*, New Delhi: Macmillan publishers India Ltd.

**BBA(BA) – III SEMESTER**  
**DECISION SUPPORT SYSTEMS WITH MS EXCEL**

**INTRODUCTION**

A Decision Support System (DSS) is a computer-based information system that supports business or organizational decision-making activities. DSS serve the management, operations and planning levels of an organization and helps them to make decisions, based on real-time data updates that may be rapidly changing and cannot be easily specified in advance. A properly designed DSS is an interactive software-based system intended to help decision makers compile useful information from a combination of raw data, documents, and personal knowledge, or business models to identify and solve problems and make decisions.

**OBJECTIVES**

- 1) To understand the generic characteristics of DSSs and recognize various cases of DSSs
- 2) To provide hands on experience in working with MS Excel as a decision support system.

**LEARNING OUTCOMES**

- 1) Understand the characteristics and usage of DSS in an organization
- 2) Use MS Excel as a Decision Support System to solve basic business problems

**SYLLABUS**

**UNIT-I:**

**Introduction to DSS:** Definition, Characteristics, Benefits and Limitations of DSS, Components of DSS, Classes of DSS, Decision Making and Decision Makers – Types of Decision Makers, Decision making Styles and DSS, Herbert Simon model of decision making, Rational and Bounded Rationality of Decision making, Decision Making in the Organization

**UNIT-II:**

**Modeling Decision Processes:** Decision Models – Inference Diagrams, Decision Trees, Group Decision Support System – Types of Group decision making, MDM support technologies

**UNIT-III:**

**Excel as Decision Support System:** Regression - Linear, exponential growth, power curve, multiple regressions, Analysis of Variance - One way Anova, Two way Anova

**UNIT-IV:**

**Sensitivity Analysis and Pivot Tables:** Data Tables, Scenario Manager, Goal Seek, Creating PivotTables, manipulating PivotTable, Changing calculated value fields, PivotTable Styles, Grouping, sorting and filtering PivotTables, Working with Pivot Charts

**UNIT-V:**

**Working with Solver:** Optimization with Solver, Optimal Product Mix, Schedule workforce, Solve transportation problems, Capital Budgeting

### **TEXT BOOK**

Winston, W. (2014), *Microsoft Excel 2013 Data Analysis and Business Modeling*, New Delhi: Prentice Hall of India.

### **REFERENCE BOOKS**

1. Marakas, G.M. (2012), *Decision Support Systems in the 21<sup>st</sup> Century*, New Delhi: Prentice Hall of India.
2. Turban, E., & Aronson, J.E. (2014), *Decision Support Systems and Business Intelligent Systems*, New Delhi: Pearson Education.
3. Christian, A.S. (2012), *VBA for Modelers: Developing Decision Support Systems with Microsoft Excel*, New Delhi: Cengage Learning.

**BBA(BA) – III SEMESTER**  
**MARKETING MANAGEMENT**

**INTRODUCTION**

How good is a product or service, if they cannot be sold to the prospective customer? Marketing helps to communicate the value of a product or service to the consumer, with an aim to sell the product. Marketing Management is a discipline focused on the application of marketing techniques and the management of marketing resources and activities. It is important to gain insights into the dynamic nature of the markets and the ways and means to manage them, using theoretical knowledge and its applicability on the field. The importance of the 4 Ps of Marketing, i.e. Product, Pricing, Promotion and Place can never be undermined.

**OBJECTIVES**

- 1) To familiarize the students with the core Concepts of Marketing
- 2) To acquaint them with different marketing functions, principles and strategies

**LEARNING OUTCOMES**

This course will equip students to

- 1) review marketing issues with respect to understand basic concepts of Marketing
- 2) understand target segmentation and consumer decision making
- 3) understand design of products that meet consumer needs
- 4) understand pricing, channels of distribution and integrated marketing communication.

**SYLLABUS**

**UNIT-I:**

**Introduction to Marketing** – Nature, Scope and Importance of Marketing – Concepts and Approaches to Marketing – Product Vs. Service Marketing, Role of Marketing in the Economic Development – Latest Trends in Marketing.

**UNIT-II:**

**Analyzing Consumer Markets and Buyer Behaviour** – Factors Influencing the Buyer Behaviour; Market Segmentation and Targeting.

**UNIT-III:**

**Marketing Mix Strategies & Extended Marketing Mix:** Product, Service Product, Classification of Products – Product Life Cycle Stages, New Product Development

**UNIT-IV:**

**Pricing & Channels of Distribution:** Pricing Objectives – Factors Influencing the Pricing Policy – Pricing Methods, Channels of Distribution – Channel Design Decisions – Channel Management.

**UNIT-V:**

**Promotion Mix** – Importance of Promotion – Managing Advertising – Sales Promotion –, Personal Selling and Direct Marketing– Publicity and Public Relations.

Case study (Not exceeding 250 words).

**TEXT BOOK**

Philip Kotler (2014), *A Framework for Marketing Management*, New Delhi: Pearson Education..

**REFERENCE BOOKS**

1. W.J. Stanton (2011), *Fundamentals of Marketing*, New Delhi: McGraw Hill Publishing Co. Ltd.
2. Gravens Hills & Wood Ruff (2012), *Marketing Management*, Cravens Hills, AITBS, New Delhi, 2012.
3. Rajan Saxena (2010), *Marketing Management*, New Delhi: Tata Mc-Graw Hill.
4. Sontakki C.N. (2012), *Marketing Management*, New Delhi: Kalyani.

**BBA(BA) – III SEMESTER  
BUSINESS ENGLISH CERTIFICATE**

**INTRODUCTION**

The world may be getting smaller, but people still speak different languages. International trade and business needs a common language and as all are aware, that place has been taken by English language. However, the words of business are different from everyday use so it's not really something every one picks up intuitively.

Business English Certificate (BEC) programme is one of the value added programme offered by BIMS and British Council. BEC is used by hundreds of employers, either as part of their staff development programme or as a qualification that they look for when recruiting staff. BEC is a globally recognized qualification and it enhances the job prospects and adds value to the CV of the student. BEC gives the opportunity to learn practical workplace English skills. Preparing for BEC improves one's confidence in using Business English, particularly speaking. Many Universities internationally recognize BEC for business courses.

**COURSE OBJECTIVES**

1. To understand the nuances of Business English
2. To enhance the students' English speaking skills
3. To clearly understand the difference between business English and colloquial English
4. To achieve maximum proficiency in business English

**ACTIVITY STRUCTURE**

BEC is offered at three levels namely, BEC Preliminary, BEC Vantage and BEC Higher, based on four skills

1. Reading, Writing, Listening and Speaking.
2. BEC Preliminary is a lower intermediate level and is meant for candidates having limited confidence in their usage of English.
3. BEC Vantage is at intermediate level and is suitable for candidates who have fluency in English.
4. BEC Higher is an advanced level certificate and is for candidates who can use English very confidently in both professional and social situations.

The students would be evaluated based on their performance in various tests conducted. The tests include:

1. Diagnostic test
2. Speaking test
3. Mock test conducted by the Institute
4. Test conducted by British Council.

Performance in BEC would be evaluated for 50 marks each. A certificate would be awarded to those students who clear the test conducted by the British Council

**BBA(BA) – III SEMESTER**  
**YOGA AND MEDITATION**

**INTRODUCTION**

Stress management is the need of the hour. A recent survey showed that 70-90% of us feel stressed at work and outside. Today's fast paced lifestyle is taking its toll on everyone. Stress, either quick or constant, can induce risky body-mind disorders.

The corporate world is a new syndrome that man has coined for himself which brings with it a whole new lifestyle and existence. Odd working hours, irregular food habits and difficult work situations and inadequate coping resources are a part of the corporate world. To survive in the world of work and reach one's greatest potential, all the energy blockers in the body and mind need to be cleared so that one can function at one's highest level.

Yoga and meditation does more than just offer exercises for relaxation. Virtually everyone can see physical benefits from yoga, and its practice can also give psychological benefits, such as stress reduction and a sense of well-being. As yoga and meditation combines several techniques used for stress reduction, it can be said to provide the combined benefits of breathing exercises, stretching exercises, fitness programs, meditation practice, etc.

**OBJECTIVES**

1. To master the technique of yoga and meditation
2. To create stress relief among the students
3. To enable the student to appreciate the physical and psychological relief it creates

**ACTIVITY STRUCTURE**

Practical and theory classes on Yoga and meditation will be conducted by a Yoga Master. 20 sessions will be scheduled. At the end of the Course the student would be evaluated both on his/her understanding of theoretical concepts, as well as the practical approach.

The assessment would be for 50 marks.

**SEMESTER – IV**

BBA(BA) – IV SEMESTER

**ENVIRONMENTAL SCIENCE**

**INTRODUCTION**

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forests, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. It is clear that no citizen of the earth can afford to be ignorant of environment issues. Environmental management has captured the attention of health care managers. Managing environmental hazards has become very important.

**OBJECTIVES**

- 1) To sensitize students to environmental issues
- 2) To mobilize them to adopt environment conservation strategies as management professionals.

**LEARNING OUTCOMES**

- 1) Creating environmental consciousness among students
- 2) Enabling them to identify potential environmental hazards and to provide management solutions to such problems

**SYLLABUS**

**UNIT-I:**

**Multidisciplinary nature of environmental studies**

Definition, Scope and importance, need for public awareness

**UNIT-II:**

**Natural resources and associated problems**

- a) *Forest resources*: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
- b) *Water resources*: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
- c) *Mineral resources*: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- d) *Food resources*: World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- e) *Energy resources*: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
- f) *Land resources*: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

Role of an individual in conservation of natural resources



Equitable use of resources for sustainable lifestyles

**UNIT-III:**

**Ecosystems**

Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.

Introduction, types, characteristic features, structure and function of the following ecosystems :-

- Forest ecosystem
- Grassland ecosystem
- Desert ecosystem
- Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management, Resettlement and rehabilitation of people; its problems and concerns.

*Environmental ethics:* Issues and possible solutions

Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Wasteland reclamation, Consumerism and waste products, Environment Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness

**UNIT-IV:**

**Biodiversity and its conservation**

*Introduction* – Definition: genetic, species and ecosystem diversity, Biogeographical classification of India

*Value of biodiversity:* consumptive use, productive use, social, ethical, aesthetic and option values, Biodiversity at global, National and local levels, India as a mega-diversity nation, Hot-spots of biodiversity.

*Threats to biodiversity:* habitat loss, poaching of wildlife, man-wildlife conflicts.

Endangered and endemic species of India

Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

**UNIT-V:**

**Environmental Pollution**

Definition, Cause, effects and control measures of :-

Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, nuclear hazards

*Solid waste Management:* Causes, effects and control measures of urban and industrial wastes

Role of an individual in prevention of pollution

Pollution case studies

*Disaster management:* floods, earthquake, cyclone and landslides.

Population growth, variation among nations, Population explosion – Family Welfare Program, Environment and human health, Human Rights, Value Education, Women and

Child Welfare, Role of Information Technology in Environment and human health.

**FIELD WORK**

1. Visit to a local area to document environmental assets river/forest/grassland /hill/mountain
2. Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
3. Study of common plants, insects, birds.
4. Study of simple ecosystems-pond, river, hill slopes, etc.

**TEXT BOOK**

Erach Bharucha (2013), *Textbook of Environmental Studies for Undergraduate Courses* Second Edition, Hyderabad: Universities Press.

**REFERENCE BOOKS**

1. Townsend C.R., Begon, M & Harper J.L (2008), *Essentials of Ecology* Third Edition, United Kingdom, Oxford: Blackwell Publishing.
2. Jadhav H.V & Bhosale V.M (2006), *Environmental Protection & Laws*, Mumbai: Himalaya Publishing House.

\*Latest Available editions

**BBA(BA) – IV SEMESTER**  
**DATA WAREHOUSING AND OLAP**

**INTRODUCTION**

As the business grows, amount of data that is accumulated over the years and in different sources will also grow. Traditional databases may not be efficient to store and handle such data and thus requires a specialized data store referred to as data warehouse that can store integrated and historical data of an organization. The data can then be analysed in different views through OLAP methods to gain more insight from it.

**OBJECTIVES**

- 1) To acquaint the students with the features and building of a data warehousing.
- 2) Gain an insight on the concept of OLAP and its application

**LEARNING OUTCOMES**

- 1) Understand the concept of data warehouse and its benefits
- 2) Plan a data warehouse as per the requirement of a business
- 3) Understand the different OLAP models and choose the appropriate one as per the need

**SYLLABUS**

**UNIT-I:**

**Introduction to data warehousing:** Definition, Benefits of a data warehouse, Features of data warehouse, Data Granularity, Information flow mechanism, Metadata and its importance, Data warehouse Architecture, Data marts Concept, Building data marts, Issues in data marts

**UNIT-II:**

**Planning a Data warehouse:** Determining the end-user requirements, requirement gathering methods, requirement analysis, dimensional analysis, Information Package Diagrams (IPD), Data warehouse project plan, Economic Feasibility Analysis

**UNIT-III:**

**Data warehouse Schema and Modeling:** Dimensional Modeling, Star Schema, Snowflake Schema, Aggregate Tables, Fact Constellation Table, Dimensional Table, Fact Table, Keys in Data Warehouse

**UNIT-IV:**

**ETL Process and Maintenance of Data Warehouse:** Data Extraction, Data Transformation, Data Loading, Data Quality, Data warehouse design review, Testing, Monitoring the Data warehouse

**UNIT-V:**

**OLAP in Data Warehouse:** Concept of OLAP, Multidimensional Analysis, OLAP functions, OLAP Applications, OLAP Models – MOLAP, ROLAP, HOLAP, DOLAP,

OLAP Design Considerations.

**TEXT BOOK**

Thareja, R. (2013), *Data Warehouse*, New Delhi: Oxford University Press.

**REFERENCE BOOKS**

1. Laberge, R. (2011), *The Data Warehouse Mentor- Practical Data Warehouse and Business Intelligence Insights*,. New Delhi. Tata McGraw Hill.
2. Prabhu, C.S.R. (2013), *Data warehousing: Concepts, Techniques, Products and Applications*, New Delhi: Prentice Hall of India.

**BBA(BA) – IV SEMESTER**  
**OPERATIONS RESEARCH**

**INTRODUCTION**

Operations Research is a widely accepted discipline that deals with the application of advanced analytical methods to help make better decisions. This method helps to derive optimal or near-optimal solutions to complex decision-making problems. Gaining an insight into the structures and processes that Operations Research can offer and the practical utility of these techniques in Business would be an asset to the future managers.

**OBJECTIVES**

- 1) To understand the mathematical models used in Operations Research
- 2) To apply these techniques constructively to make effective business decisions

**LEARNING OUTCOMES**

- 1) Solve Linear programming problem
- 2) Solve Transportation and Assignment Problems
- 3) Understand the usage of game theory and simulation for solving business problem

**SYLLABUS**

**UNIT-I:**

Introduction: Nature and meaning of Operations Research, Management applications of Operations Research, main characteristics of Operations Research, scope of Operations Research, role of Operations Research in decision making.

**UNIT-II:**

Linear Programming Problem: Introduction, mathematical formulation of LPP, general Linear Programming problem, Graphical Solution of LPP, Canonical and Standard Forms of LPP, solving LPP by Simplex Method.

**UNIT-III:**

Transportation & Assignment Problems: Introduction of transportation problems, procedures of finding basic feasible and optimal solution – NW corner rule, minimum cost method, Vogel's Approximation, MODI method, Assignment Problem - introduction, solving of Assignment problem by Hungarian Algorithm.

**UNIT-IV:**

Game Theory and Simulation: Game theory: Introduction, Two Person Zero Sum Games, Pure Strategies, Dominance Principle, Graphical; Simulation: introduction, types of simulation, generation of random numbers, Monte Carlo Simulation, and waiting lines.

**UNIT-V:**

Network Scheduling by PERT / CPM: Introduction, network and basic components, logical sequencing, rules of network construction, Critical Path Analysis, probability considerations in PERT, distinction between PERT and CPM.

**TEXT BOOK**

Sharma, J.K. (2010), *Operations Research Theory and Applications*, New Delhi: Macmillan India limited.

#### **REFERENCES BOOKS**

1. Sharma, S.D. (2012), *Operations Research*, Meerut: Kedar Nath Ram Nath & Co.
2. Hillier. F.S., & Lieberman, G.L. (2014), *Introduction to Operations Research - Concepts and Cases*, New Delhi: Tata McGraw Hill.

**BBA(BA) – IV SEMESTER**  
**PREDICTIVE ANALYTICS AND DECISION MAKING**

**INTRODUCTION**

Predictive Analytics is a discipline that deals with the application of statistical and machine learning techniques on historical data to predict future outcomes. In this competitive age, predictive analytics not only helps in making informed decisions and solve business problems but also to have an edge over the competitors.

**OBJECTIVES**

- 1) To understand the basic statistical techniques required for forecasting
- 2) To apply these techniques constructively to make effective business decisions

**LEARNING OUTCOMES**

- 1) Solve forecasting problems
- 2) Make effective decisions using statistical techniques

**SYLLABUS**

**UNIT-I:**

**Multiple Correlation Analysis:** Introduction, Significance of multiple correlation, Multiple and partial correlation, Relation between multiple and partial correlation coefficients.

**UNIT-II:**

**Multiple Regression Analysis:** Introduction, Significance of Multiple Regression Analysis, Estimating the parameters of Multiple Regression by method of Least Squares and Using Regression Coefficient methods, Relation between partial regression coefficients and correlation coefficients, Standard Error of Estimates for Multiple regression.

**UNIT-III:**

**Forecasting Trend:** Introduction, Linear trend model, Exponential trend, Measurement of Seasonal effects – Method of Simple Average, Ratio-to-Trend Method, Ratio-to-Moving Average Method, Link Relative Method.

**UNIT-IV:**

**Hypothesis Testing:** Introduction, Types of Hypothesis, Hypothesis Testing Procedure, One sample and Two sample Test for Mean (Students t-distribution and Z-test); Introduction to Chi-Square distribution, Chi-Square test for Goodness of fit and for Independence of Attributes.

**UNIT-V:**

**Analysis of Variance:** Introduction, Testing equality of population means (One –Way Classification), Testing equality of population means (Two –Way Classification)

**Note:** Proofs of theorems and derivations of problems and distributions are excluded.

**TEXT BOOK**

J. Joseph Frrancis (2015), *Business statistics*, New Delhi: Cengage Learning.

**REFERENCES BOOKS**

- 1) Bruce L. Bowerman, Richard T.O“Connell, Emily S. Murphree (2015), *Business Statistics in practice*, New Delhi: McGraw Hill Education (India) Private Ltd.
- 2) David M.Levine, david Stephan Timothy C.Krehbiel, Mark l Berenson (2015), *Statistics for managers using Microsoft Excel*, New Delhi:Prentice Hall India Pvt.
- 3) Amir D.Aczel, Jayavel Sounderpandian (2015), *Complete Business Statistics*, New Delhi:Tata McGraw Hill.
- 4) S.P. Gupta &M.P. Gupta (2015), *Business Statistics*, New Delhi: Sultan Chand & Sons.



## **BBA(BA) – IV SEMESTER**

### **INTRODUCTION TO R**

#### **INTRODUCTION**

R is an open source programming language for statistical computing and graphics. R has found huge acceptance from the data scientists' community and is being widely used by the statisticians and data miners for data analysis.

#### **OBJECTIVES**

1. Understand the programming concepts of R
2. Gain hands on experience in working with R

#### **LEARNING OUTCOMES**

1. Write basic programs in R language
2. Use built in packages to enhance the program
3. Perform data visualization with R

#### **SYLLABUS**

##### **UNIT-I:**

**Introduction to R:** Concept of R, Installing R, IDE of R, Getting help from R, Mathematical Operators and Vectors, Assigning Variables, Special Numbers, Logical Vectors, Classes, Different types of numbers, Changing classes, Examining Variables, The workplace, Vectors – Sequences, Lengths, Names, Indexing Vectors, Vector Recycling and Repetition, Matrices and Arrays – Creating Arrays and Matrices, Rows, Columns, Dimensions, Indexing Arrays, Combining Matrices, Array Arithmetic,

##### **UNIT-II:**

**Lists, Functions, Strings and Factors:** Lists – Creating lists, Automatic and recursive variables, List dimensions and arithmetic, indexing lists, Conversion between vectors and lists, Combining lists, NULL, Pairlists, Data Frames – Creating Data Frames, Indexing Data Frames, Basic Data Frame Manipulation, Environments, Functions – Creating and Calling Functions, Passing functions, variable scope, Strings – Constructing and printing strings, Formatting numbers, Special characters, Changing case, Extracting Substrings, Splitting Strings, File paths, Factors – Creating, factor levels, ordered factors, conversion of variables

##### **UNIT-III:**

**Flow Controls:** Conditional – if and else, Vectorized if, Multiple Selection, Loops – repeat loops, while loops, for loops, Advanced looping – replication, looping over lists, looping over arrays, Multiple – Input Apply, Instant vectorization, Split-Apply-Combine

##### **UNIT-IV:**

**Statistics with R:** Summarizing data, Calculating relative frequencies, Tabulating Factors and creating contingency tables, Testing categorical variables for independence, Calculating Quantiles of a dataset, Converting data into z-scores, t-test, testing sample

proportions, testing normality, comparing means of two samples, testing correlation for significance, Linear regression in R, Logistic Regression in R Clustering with R

**UNIT-V:**

**Packages and Visualization:** Loading packages, search path, libraries and installed packages, installing packages, maintaining packages, Visualization – The three plotting systems, Scatterplots – base graphics, lattice graphics, ggplots, Line Plots, Histograms, Box Plots, Bar Charts, Other plotting packages and systems

**TEXT BOOK**

Gardener, M (2013), Beginning R, New Delhi: Wiley India.

**REFERENCE BOOKS**

1. Teetor, P. (2014), R Cookbook, Mumbai: O’ Reilly India / Shroff Publishers.
2. Cotton, R. (2014), Learning R, Mumbai : O’ Reilly India / Shroff Publishers.

**BBA(BA) – IV SEMESTER**  
**FINANCIAL MANAGEMENT**

**INTRODUCTION**

Finance is the life blood of the business. Financial Management is one of the key areas of management. This Course helps in understanding of the fundamentals of financial management in terms of investment; financing and dividend policy. This course is designed to familiarize the students with the basic concepts and practices of Financial Management.

**OBJECTIVES**

- 1) To familiarize the students with the basic concepts of Financial Management.
- 2) To give thorough understanding of the practices of basic Financial Management.

**LEARNING OUTCOMES**

After completing this course the students should be able to –

- 1) make optimum decisions pertaining to raising funds, making investments and managing the assets of a corporation, big or small.
- 2) Learn to manage finances with the ultimate goal of creating value.

**SYLLABUS**

**UNIT-I:**

**Financial Management: An Introduction**

Meaning and Definition of financial Management, Goals of Financial Management, Finance Functions, Organisation of finance function, Interface between Finance and other business functions, Financial Planning, Steps in Financial Planning, Factors Affecting Financial Plans, Time Value of Money.

**UNIT-II:**

**Investment Decisions**

Introduction to Capital Budgeting, Importance of capital Budgeting, Capital Budgeting Process, Techniques of Capital Budgeting - Accounting Rate of Return, Pay Back Period, Net Present Value, Internal Rate of Return and Profitability Index.

**UNIT-III:**

**Financing Decisions**

Cost of Capital - Cost of Debt, Cost of Preference Shares, Cost of Equity Shares, Cost of Retained Earnings, Weighted Average Cost of Capital; Leverages – Introduction – Types of Leverages – Measurement of Operating Leverage, Financial Leverage and Combined Leverage ; Capital Structure – Introduction, Features of Ideal Capital Structure, Factors affecting Capital Structure, Theories of Capital Structure - Net Income Approach, Net Operating Income Approach, Modigliani and Miller Approach and Traditional Approach

**UNIT-IV:**

**Working Capital Management** - Introduction – Concepts of Working Capital, Objective

of Working Capital Management, Need for Working Capital, Operating Cycle, Determinants of Working Capital, Estimation of Working Capital.

**UNIT-V:**

**Dividend Decisions** - Introduction, Forms of Dividends, Types of Dividend Policies, determinants of Dividend Policy -Theories of Dividend Policy - Walter Model, Gordon Model, Modigliani and Miller Model – Bonus Shares and Stock Split – Legal, procedural and Tax Aspects of Dividend Policy.

**TEXT BOOK**

M.Y. Khan & P.K. Jain. (2013), *Financial Management*. New Delhi: Tata McGraw Hill.

**REFERENCE BOOKS**

1. I.M. Pandey (2010), *Financial Management*, New Delhi: Vikas Publications.
2. R.K. Sharma & Shashi K. Gupta (2014), *Financial Management*. Ludhiana: Kalyani Publications.

**BBA(BA) -- IV SEMESTER**  
**PUBLIC SPEAKING**

## **INTRODUCTION**

Communication skills are indispensable to success in the corporate world. In the actual practice of business, one spends much more time in talking rather than in writing. Oral business communication skills are therefore crucial for students of commerce and management. Oral business communication may be formal or informal. Formal communication involves meetings, presentations and speeches etc., whereas informal communication covers all aspects of informal talking and listening. Public speaking is a vital skill which encompasses all the above aspects of oral business communication. The training imparted in public speaking ensures that the student is groomed into a successful business professional.

## **OBJECTIVES**

The objectives of this course are :

1. Select and organize a subject for effective formal presentation to a specific audience
2. Understand how personal aspects and audience analysis contribute to formal presentations
3. Learn how to use verbal content with information based, linguistic and stylistic aspects
4. Learn how to use non-verbal content, visuals, graphics, voice quality and body language
5. Work effectively with a team for team presentations
6. Plan and deliver effective public speeches, virtual presentations and oral reports

## **SYLLABUS**

### **UNIT-I:**

Basics of Business Communication – Definition, Types and Aspects, Basics of Communicating in the Workplace.

### **UNIT-II:**

Informal Oral business communication - talking, meetings, using the phone, using speech recognition, listening, role of nonverbal communication – Practical Exercises

### **UNIT-III:**

Formal Oral business communication – Making formal speeches – selection of the topic, preparation of the presentation – determination of the presentation method – consideration of personal aspects – audience analysis – Study of Great Speakers and Speeches - Practical Exercises

### **UNIT-IV:**

Verbal and Non-Verbal Aspects – matter and linguistic style - appearance and physical actions - use of voice – use of visuals and graphics – Study of Great Speakers and

Speeches - Practical Exercises

**UNIT-V:**

Team or Collaborative Presentations – Virtual presentations – Oral reports – Practical Exercises

**TEXTBOOK**

Lesikar Raymond V., et al (2010), *Business Communication – Making Connections in a Digital World*, New Delhi : Tata McGraw Hill.

**REFERENCE BOOKS**

1. Carnegie Dale(2014), *The Art of Public Speaking*, New Delhi : Tata McGraw Hill.
2. Express Series (2014), *English for Presentations*, New Delhi : Oxford University Press.
3. Express Series (2014), *English for Meetings*, New Delhi : Oxford University Press, 2014.

**BBA(BA) – IV SEMESTER  
SOFT SKILLS**

**Introduction**

Management involves utilising the human capital of an enterprise to contribute to the success of the enterprise. Management is the act of coordinating the efforts of people to accomplish desired goals using available resources efficiently and effectively.

Today's workforce comes from varied social and cultural backgrounds, with differing standards of behaviour. These may not always be in sync with the norms of the organization. The ability to deal with differences, multiculturalism and diversity is needed more than ever. It is important, for students who would be entering the corporate world for the first time, to inculcate behaviour that is appropriate for the workplace. The importance of personal grooming, business etiquette, verbal and non-verbal communication, telephone etiquette and general professional conduct, can never be undermined.

Soft Skills is now recognised as key to making businesses more profitable and better places to work. Increasingly, companies aren't just assessing their current staff and future recruits on their business skills. They are now assessing them on a whole host of soft skill competencies around how well they relate and communicate to others.

It has been found that soft skills can be developed and honed on an on-going basis through good training, insightful reading, observation, and of course, practice, practice, practice.

Students can focus on areas of self-improvement to help improve their behaviour, transform their professional image and create a positive impact in their careers. Greater awareness of grooming and etiquette will help one to develop poise and confidence. This will significantly impact the image that one has in any formal, professional and social situations

**LEARNING OBJECTIVES**

1. To understand and enhance social skills
2. To help build greater confidence when interacting with people
3. To build on the ability to make a positive first impression
4. To help improve the overall appearance

**ACTIVITY STRUCTURE**

Students would be focusing on the following major activities under this Course:

- a) Grooming and etiquette
- b) Introspection, self awareness and self introduction
- c) CV writing
- d) Facing interviews

Guidance on the above issues would be given by an Expert and Faculty would be guiding them through one-to-one interaction. Assessing them on their performance would be done by the Faculty.

The assessment would be for 50 marks.

**SEMESTER – V**  
**BBA(BA) – V SEMESTER**  
**PROGRAMMING IN JAVA**

**INTRODUCTION**

Java programming language has gained popularity over the years for its features like OOP, platform independence and applet programming. Java is been the basis for applications that run on web and mobile alike. Knowledge of Java programming language will help in understanding other platforms such as Hadoop, which is used to process large data.

**OBJECTIVES**

- 1) To acquaint the students with the concepts of java programming language
- 2) To provide hands on experience in writing java code.

**LEARNING OUTCOMES**

- 1) Write basic programs in Java using OOP concept
- 2) Develop java applications with exception handling

**SYLLABUS**

**UNIT–I:**

**Introduction to OOP and Java:** Need for Object Oriented Programming, Principles of OOP, Applications of OOP, Introduction to Java – Java Virtual Machine, Java features, Program structure of Java

**UNIT–II:**

**Java Programming Constructs:** Variables, Data Types, Identifiers, Literals, Operators and Expressions, Type casting, Control Structures, Console Input / Output Statements

**UNIT– III:**

**Classes and Objects:** Classes, Objects, Methods – Types, Declaration, Instance method invocation, Method overloading, Constructors – Parameterized Constructors, Constructor Overloading, Static Keyword, this keyword, Arrays, Command Line arguments, Inner classes

**UNIT–IV:**

**Inheritance and Packages** – Types of inheritance, Deriving classes using Extends keyword, Overriding method, super keyword, final keyword, Abstract class, Interfaces, Packages – Creating and Using packages

**UNIT–V:**

**Exception Handling and Multithreading:** Introduction to Exception, Exception Types, Exception handling techniques – try...catch keyword, throw keyword, throws, finally Block, try-with-resources statement, Multi Catch, Multithreading - Concept of Multithreading, Main thread, Creation of new threads, Thread states, Thread Priority



**TEXT BOOK**

Malhotra, S., & Choudhary, S. (2014), *Programming in Java*, New Delhi : Oxford University Press.

**REFERENCE BOOKS**

1. Schildt, H. (2014), *Java: The Complete Reference*, New Delhi: Tata McGraw Hill.
2. Balagurusamy, E. (2014), *Programming with Java*, New Delhi :Tata McGraw Hill.

**BBA(BA) – V SEMESTER**  
**PRODUCTION AND OPERATIONS MANAGEMENT**

**INTRODUCTION**

The concept of production is the process through which goods and services are created. We can include both manufacturing and service organizations within the purview of production management. Thus the essential futures of the production function are to bring together people, machines and materials to provide goods or services thereby satisfying the wants of the people. The scope of the production enables us to look at the problem of production management in a much wider perspective. This paper indicate the general applications of the techniques of management, machines and materials

**OBJECTIVES**

- 1) To enable to the students to understand the basic principles of Production Management
- 2) To help them apply techniques of Production Management

**LEARNING OUTCOMES**

- 1) This course aids in understanding the role of operations in achieving various competitive capabilities.
- 2) The students also learn how to help an organization in improving productivity and meeting customer's competitive capabilities.

**SYLLABUS**

**UNIT-I:**

Production and Operations Management - Production and Operation Functions - Manufacturing Systems –Differences Between Manufacturing and Service Operations - Functions of Production and Operations Manager.

**UNIT-II:**

Production Planning and Control: Steps in PPC - Techniques of Production Planning and Control

**UNIT-III:**

Plant Location and Layout Planning: Location of Service Facilities -Location Decision - Types of Layout – Factors Affecting Plant Location.

**UNIT-IV:**

Productivity: Factors Affecting Productivity -Job Design -Process Flow Charts -Methods Study -Work Measurement.

**UNIT-V:**

Materials Management: Costs Associated with Inventory - Economic Order Quantity - ABC Analysis – Just in-time Production. Quality Management: Acceptance Sampling -

Control Charts –Quality Circle.

**TEXT BOOK**

Aswathappa & Bhat (2013), *Production and Operations Management*, New Delhi: Himalaya Publishing House.

**REFERENCE BOOKS**

1. Everett E. Adam, Jr. and Ronalds J. E. Ebert (2012), *Production and Operations Management: Concepts, Models and Behavior*, New Delhi: Prentice Hall of India.
2. S.N. Chary (2011), *Production and Operations Management*, New Delhi: Tata Mc-Graw Hill Publishing Co. Ltd.

**BBA(BA) – V SEMESTER**  
**DATA VISUALIZATION**

**INTRODUCTION**

Data Visualization is the presentation of data in a pictorial or graphical format. Today analysts are required to deal with large amount of data. Visualization helps in presenting the data in pictorial or graphical format. Such visual representation will help in providing better insights to the decision maker. Tableau is a popular visualization tool to create visual data.

**OBJECTIVES**

- 1) To understand the concept and benefits of visualization
- 2) Understand the usage of different visual encoding
- 3) Provide hands on working with Tableau data tool

**LEARNING OUTCOMES**

- 1) Design data visuals with different visual encodings
- 2) Create different types of charts and maps in Tableau
- 3) Customize the presentation with different elements

**SYLLABUS**

**UNIT–I:**

**Introduction to Visualization:** Concept and importance of data visualization, Choosing appropriate visual encodings – ordering of items, number of distinct values, structure of visualization, Positioning - Placement and Proximity, Graphs and Layouts, Colors, Size, Text and Typography, Shape, Lines

**UNIT–II:**

**Working with Tableau Data Source and Basic Charts:** Introduction to Tableau, Connecting to Data Source: Text Files, Excel, Access, other databases, merging multiple data sources, Univariate Charts – Creating tables, bar graphs, pie charts, histograms, line charts, stacked bar graphs, box plots, Showing aggregate measures, Bivariate Charts – Creating tables, scatter plots, swapping rows and columns, adding trend lines, selecting color palettes, using dates

**UNIT–III:**

**Multivariate Charts and Maps:** Facets, area charts, bullet graphs, dual axes charts, Gantt charts, heat maps, Maps – Setting geographical roles, placing marks on map, overlaying demographic data, choropleth maps, polygon shapes, customizing maps

**UNIT–IV:**

**User defined fields:** Using predefined fields, calculating percentages, applying if-then logic, applying logical functions, showing totals and percentages, discretizing data, manipulating text, aggregate data

**UNIT–V:**

**Customization:** Adding title and caption, font size and colors, adding various marks,

adding reference lines, using presentation mode, adding annotation, adding drop-down selectors, search box selectors, slider selectors, creating dashboards, creating animated visualizations

### **TEXT BOOK**

Nandeshwar, A. (2015), *Tableau Data Visualization Cookbook*, Mumbai: PACKT / Shroff Publishers.

### **REFERENCE BOOKS**

- 1) Iliinsky, N. & Steele, J. (2012), *Designing Data Visualizations*, Mumbai: O'Reilly / Shroff Publishers.
- 2) Milligan, N.J. (2015), *Learning Tableau*, Mumbai: PACKT / Shroff Publishers.
- 3) Jones, B. (2014), *Communicating Data with Tableau*, Mumbai: PACKT / Shroff Publishers

**BBA(BA) – V SEMESTER**  
**DATA MINING**

**INTRODUCTION**

Data mining refers to collection of techniques to analyze large dataset to identify interesting and relevant patterns which may prove useful for an organization. Also known as Knowledge Discovery in Database (KDD) process, data mining is a vital tool for any business to gain competitive edge.

**OBJECTIVES**

- 1) To acquaint the students with the concept of data mining
- 2) To give a hands on experience in working with a data mining tool.

**LEARNING OUTCOMES**

- 1) Understand the concept of data mining and its benefits
- 2) Perform classification using data mining tool
- 3) Perform association analysis and clustering using a data mining tool
- 4) Understand usage of data mining in different business areas

**SYLLABUS**

**UNIT-I:**

**Introduction to Data Mining:** Definition and concept of Data mining, Data mining tasks, KDD process, Benefits of data mining

**UNIT-II:**

**Classification Techniques:** Basic concept of classification problem, Decision tree method, Rule based classifier, Nearest neighbor classification, Bayesian classifier, Evaluating classifiers

**UNIT-III:**

**Association Analysis:** Concept of association, Frequent itemset generation, Rule generation, Sequence Mining, Evaluating association patterns – Confidence and Support metrics

**UNIT-IV:**

**Cluster Analysis:** Concept of clustering, Types of clustering techniques, K-means, Agglomerative Hierarchical Clustering, Prototype based clustering, Density based clustering, Outlier detection in clusters, Cluster Evaluation

**UNIT-V:**

**Data mining Applications:** Data mining applications in the area of Marketing and Finance, Web Mining, Text Mining

**TEXT BOOK**

Tan, P. N., Steinbach, M., & Kumar, V. (2014), *Introduction to Data Mining*, New  
121

Delhi: Pearson Education.

### **REFERENCE BOOKS**

1. Soman, K.P., Diwakar, S., & Ajay, V. (2013), *Insight into Data Mining Theory and Practice*, New Delhi: Prentice Hall of India.
2. Witten, I.H., Frank, E., & Hall, M. A. (2011), *Data Mining Practical Machine Learning Tools and Techniques*, New Delhi: Elsevier / Morgan Kaufmann.
3. Jiawei, H., Kamber, M., & Pei, J. (2014), *Data Mining: Concepts and Techniques*, New Delhi: Elsevier / Morgan Kaufmann.

**BBA(BA) – V SEMESTER**  
**STATISTICAL QUALITY CONTROL AND SIX SIGMA**

**INTRODUCTION**

Statistical quality control refers to the use of statistical methods in the monitoring and maintaining of the quality of products and services. SQC is used to analyze the quality problems and solve them. Six sigma measures the quality of business performance for processing a product. Business score card emphasize on the implementation of measurement system so that it can be used to write business performance.

**OBJECTIVES**

- 1) To enable the students to understand and diagnose the levels or standards that depends on many factors and lack of quality while processing the end products.
- 2) To enable them to evaluate various options in reaching financial decisions, whether personal or business- related.

**LEARNING OUTCOMES**

- 1) Create control charts for a given problem
- 2) Understand the factors to look out for quality acceptance
- 3) Understand the elements of six sigma business score card

**SYLLABUS**

**UNIT-I:**

Introduction to control charts, process and product control, control charts,  $\sigma$  control limits, tools for statistical quality control, creating control charts for variable.

**UNIT-II:**

Construction of control charts for attributes, p-chart for fraction defective, d-chart for number of defective, interpretation of p-chart. Control charts for number of defects per unit: limits for c-chart, c-chart for variable sample size or u-chart, application c-chart and Natural tolerance limits and specification limits.

**UNIT-III:**

Acceptance sampling by attributes- acceptance quality level, lot tolerance proportion or percent defective, process average fraction defective, consumers risk, producers risk, rectifying inspection plans, average outgoing quality limit, O.C curve, single sampling plan, double sampling plan and sequential sampling plan.

**UNIT-IV:**

Six sigma- Basics of six sigma, traditional approach of six sigma, break through approach to six sigma-measure, variation, cost of quality, six sigma measurements, Analyze, improve control: challenges in implementing six sigma.

**UNIT-V:**

Elements of six sigma business score card: Leadership and profitability, Management and improvement, Employees and innovation, Purchasing and supplier management,



Operational execution, Sales and distribution, Service and growth, Six sigma business score card and measurements, Business performance index, Corporate DPU and DPMO, Corporate sigma level.

**Note**

1. This paper is without a case study.

**TEXT BOOKS**

1. S.C.Gupta and V.K. Kapoor, Fundamentals of Applied Statistics, Sultan and Chand, New Delhi, 2017.
2. Praveen Gupta, Six Sigma Business Score card, Tata McGraw-Hill Publishing company limited, New Delhi, 2017

**REFERENCE BOOKS**

1. Gupta and Kapoor ,Fundamentals of applied statistics, Sultan and Chand,2017
2. Pathak and F. Resh ,Demographic Methods, Sultan and Chand,2017
3. G. Harver, Lean Six Sigma For Beginners, A Quick-Start Beginner's Guide To Lean Six Sigma, Kindle Edition.
4. Daniel J. Zrymiak , Govindarajan Ramu , Roderick A. Munro, The Certified Six Sigma Green Belt Handbook, 2nd Edition (With 2 CD-ROMs) Hardcover – 2015
5. Thomas Pyzdek , Paul Keller, The Six Sigma Handbook Hardcover – 30 Aug 2010

**BBA(BA) – V SEMESTER**  
**PROJECT MANAGEMENT**

### **INTRODUCTION**

Project Management refers to all the process and activities required to implement and meet the project requirement. Project management takes into consideration goals, resources and schedules of each project, while executing it. This enables in better management of chaos, risk, issues and changes, resulting in a well defined, qualitative project.

### **OBJECTIVES**

- 1) To enable to the students to understand the basic concepts of project management
- 2) To help them apply techniques of Project management and evaluation

### **LEARNING OUTCOMES**

- 1) Understand the project life cycle and different tools and techniques in project management
- 2) Evaluate the feasibility of a project
- 3) Implement and evaluate a project

### **SYLLABUS**

#### **UNIT-I:**

**Concepts of Project Management** - project management concept, categories of projects, project lifecycle, tools and techniques of project management, roles and responsibilities of project manager.

#### **UNIT-II:**

**Establishing the Project**-feasibility report - financial aspects of project preparation, technical aspects, finalization of project implementation schedule, evaluation of project profitability.

#### **UNIT-III:**

**Contracting** - accountability in project execution, contracts, 3“R”s of ~~cont~~ tendering and selection of contracts, team building.

#### **UNIT-IV:**

**Project Implementation** - project execution plan, project procedure manual, project control system, project scheduling and monitoring, monitoring contracts.

#### **UNIT-V:**

**Project Evaluation, Reporting** - project evaluation, project review meetings, project reporting, closing the contract, project extensions.

### **TEXT BOOK**

Choudhury, S. (2010), Project Management, New Delhi: McGraw Hill India.

### **REFERENCE BOOKS**

1. Nagarajan, K. (2015), Project Management, New Delhi: New Age International (P)

**MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB**  
(Formerly West Bengal University of Technology)  
**Syllabus for BBA (Business Analytics)**  
(Effective for Students Admitted in Academic Session 2019-2020)

Ltd Publishers.

2. Khanna, R. B. (2012), Project Management, New Delhi: Prentice Hall of India.
3. Chandra, P (2014), Projects Planning, Analysis, Selection, Implementation and Review, New Delhi: McGraw Hill India.

**BBA(BA) – VI SEMESTER**

**BIG DATA ANALYTICS**

**INTRODUCTION**

Big data is a term used to describe a massive amount of structured and unstructured data collected over the years from different sources. Analysis of such data may provide great insights for a business. However, traditional data management functions are not capable for handling such data and requires specialized tool. Hadoop is a popular platform for carrying out big data analytics

**OBJECTIVES**

1. To acquaint the students with the concepts of big data
2. To provide hands on experience in working with Hadoop

**LEARNING OUTCOMES**

1. Understand the concept of big data and the process of big data analytics
2. Apply different packages under Hadoop for big data analytics

**SYLLABUS**

**UNIT–I: Introduction to Big Data:** Concept, Features of big data, big data challenges, Hadoop and its features, Hadoop Ecosystem, Hadoop Components, Hadoop Architecture, Hadoop Cluster, Hadoop Storage: HDFS

**UNIT–II: Hadoop Mapreduce:** Concept, YARN components, YARN architecture, YARN mapreduce application execution flow, YARN workflow, Anatomy of mapreduce program, distributed cache, MRunit, Reduce Join, Custom input format, sequence input format

**UNIT–III: Introduction to Apache PIG:** PIG Components & Execution, PIG data types, Data models in PIG, Programming in PIG

**UNIT–IV: APACHE HIVE:** Introduction, Architecture and components, data types and data models, HIVE partitioning and bucketing, HIVE tables, HIVE QL: joining tables, dynamic partitioning

**UNIT–V: APACHE HBase:** Introduction, Architecture and components, Run modes, configuration, data models, HIVE data loading techniques, Introduction to Apache Spark

**TEXT BOOK**

White, Tom. (2015), *Hadoop: The Definitive Guide*, Mumbai: Shroff Publishers & Distributers Private Ltd.

**REFERENCE BOOKS**

1. Jain, V.K. (2015), Big Data and Hadoop, New Delhi: Khanna Publishers
2. Deroos, Dirk., Zikopolous, Paul C., Melnyk, Roman B., Brouwn, Bruce., Coss,

**MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB**  
(Formerly West Bengal University of Technology)  
**Syllabus for BBA (Business Analytics)**  
(Effective for Students Admitted in Academic Session 2019-2020)

Rafael (2014), *Hadoop for Dummies*, New Delhi: Wiley India Alex Holmes (2015), *Hadoop in practice*, New Delhi: Dreamtech Press.

3. Minelli, M. (2013), *Big Data, Big Analytics*, New Delhi: Wiley India.
4. DT. Editorial Services. (2016), *Big Data Black Book*, New Delhi: Dreamtech Press.

**BBA(BA) – VI SEMESTER**  
**E-COMMERCE**

**INTRODUCTION**

By the help of the flexibility offered by computer networks and the availability of the Internet, E-commerce develops on traditional commerce. E-commerce creates new opportunities for performing profitable activities online. It promotes easier cooperation between different groups: businesses sharing information to improve customer relations; companies working together to design and build new products/services; or multinational company sharing information for a major marketing campaign.

**OBJECTIVES**

- 1) To make the students understand the various concepts related to Electronic Business
- 2) To enable them to understand and exploit its role in providing strategic advantage.

**LEARNING OUTCOMES**

- 1) Understand the concept of E-Commerce and its significance
- 2) Understand how social media is playing a vital role for the promotion of a business
- 3) Understand the concept and usage of M Commerce

**SYLLABUS**

**UNIT-I:**

**Introduction to E-Commerce** – Definitions - Types of E-commerce, Benefits of E-commerce - Limitations of E-commerce - Impact of E-commerce – Electronic Market Structure – Business Models of E-Commerce, Electronic Marketplaces – Types of E-Marketplaces, Electronic stores and Malls, Electronic Catalogues, E-Shopping Cart, Online Auctioning

**UNIT-II:**

**B2C and Advertising in Ecommerce** – Retailing in E-Commerce – E-Tailing Business Models, Online Purchase Decision Aids, Online Consumer Behavior Model –Consumer Purchasing Decision Making Process– Internet Marketing Methods – Web Advertising - Advertisement Methods – Advertisement Strategies and Promotions

**UNIT-III:**

**B2B E-Commerce** - Characteristics of B2B EC – Models of B2B - Purchasing, Logistics and Support Activities, Electronic Data Interchange (EDI), Electronic Supply Chain Management

**UNIT-IV:**

**Electronic Payment Systems and Security**– Electronic Payment and Protocols – Electronic Credit Card system – Electronic Fund Transfer and Debit Cards - Security

schemes in Electronic Payment Systems, Fraud Protection

**UNIT-V:**

**Mobile and Social Commerce:** Attributes and Drivers of M-Commerce, Mobile Financial Applications, Mobile Marketing and Advertising, Mobile Entertainment, Web 2.0, Virtual Communities, Online Social Networking, Business and Enterprise Social Networks, Advertising in Social Networks

**TEXT BOOK**

Efrain Turban, David King, Jae Lee, Dennis Viehland (2014), *Electronic Commerce: Managerial and Social Networks Perspective*, New Delhi: Pearson Education.

**REFERENCE BOOKS**

1. Hanson Ward (2012), *Internet Marketing and Ecommerce*, New Delhi: Cengage Learning .
2. Elias M Awad (2012), *Electronic Commerce: From Vision to Fulfillment*, New Delhi: Prentice Hall of India.
3. P.T.S.J. Joseph (2012), *E-Commerce: An Indian Perspective*, New Delhi: Prentice Hall India.
4. Karabi Bandopadhyay (2012), *Mobile Commerce*, New Delhi: Prentice Hall India.

**BBA(BA) – VI SEMESTER  
BUSINESS ANALYSIS**

**INTRODUCTION**

Business Analysis is the process of enabling change in an organization by understanding its needs and recommend solutions to achieve the organization goals. Business Analyst helps in achieving this task by leveraging the technology with business functions and organizational needs.

**OBJECTIVES**

- 1) To acquaint the students with process of business analysis
- 2) To give hands on experience in preparing business and financial case

**LEARNING OUTCOMES**

- 1) Understand the entire step by step process that takes place in business analysis
- 2) Use Process modeling tools to define the requirements
- 3) Prepare business and financial case.

**SYLLABUS**

**UNIT–I:**

**Introduction to BA:** Concept, Business Analysis maturity model, Role and responsibilities of Business Analyst, Competencies of a business analyst, Project Definition and Scoping: Aspects of project, Defining objectives and scope, Identifying stakeholders, Project phases and deliverables, Project approaches - Waterfall, Agile, Iterative, Incremental

**UNIT–II:**

**Elicitation:** Investigation techniques - Interviewing and Fact Finding, Gathering Requirements – Requirements engineering, Requirements elicitation, Requirement analysis, Types of requirements – Functional and non-Functional, Documenting requirements

**UNIT–III:**

**Process Modeling:** Examining business process model, Business Process Model and Notation (BPMN), Process Modeling as requirements definition tool. Data Modeling: Concept, Entity relationship diagrams, Identify and define attributes

**UNIT–IV:**

**Ensuring Requirements Quality:** Development of Use Cases and scenarios, Requirements Quality Criteria, Managing Delivery: Delivering the solution, Delivery lifecycles, Deliverables, Techniques,

**UNIT–V:**

**Making Business and Financial Case:** Business case in project lifecycle, Identifying options, Feasibility study, Structure of business case, Investment appraisal, Presentation of



business case, Benefits management and realization.

### **TEXT BOOK**

Cadle James, Eva Malcom, Hindle Keith, Paul Debra, et al. (2014), *Business Analysis*, United Kingdom: BCS, The Chartered Institute for IT.

### **REFERENCE BOOKS**

1. Pendse Pradeep Hari (2015), *Business Analysis : Solving Business Problems By Visualizing Effective Processes and It Solutions*, New Delhi : Prentice Hall of India.
2. Paul Mulvey, Kate Mcgoey, Kupe Kupersmith (2013), *Business Analysis for Dummies*, New Delhi : Wiley India.

**BBA(BA) – VI SEMESTER**  
**DATA ANALYSIS WITH PYTHON**

## **INTRODUCTION**

Python is an open source high level interpreter based language. Python is interactive and object oriented language with wide range of applications. Python is commonly used in the area of data science and web based analytics.

## **OBJECTIVES**

- 1) Understand the programming features of python
- 2) Get hands on experience in working with python and build data applications

## **LEARNING OUTCOMES**

- 1) Write simple to complex programs in python
- 2) Use python for data analysis
- 3) Use python for data visualization

## **SYLLABUS**

### **UNIT–I:**

**Introduction:** Features of Python, Setting up path, Variables and Data types, Operators in Python, Input – Output Statements, Control Structures: Conditional Statements, Looping Statements, Control Statements

### **UNIT–II:**

**Data Structures of Python:** Strings, Lists, Tuples, Dictionaries, Functions: Defining and calling a function, Types of Function; Modules: Importing Module, Packages, Composition, Exception Handling

### **UNIT–III:**

**OOP Concepts and Regular Expressions:** OOP concepts in Python, Regular Expressions: Match Function, Search Function, Matching Vs Searching, Modifiers, Patterns, Working with Database

### **UNIT–IV:**

**Python for Data Analysis - I:** NumPy Basics: Arrays and Vectorized Computation, Pandas Basics: Working with Series and DataFrame

### **UNIT–V:**

**Python for Data Analysis – II:** Data Loading Methods, Data Transformation Methods, Plotting and Visualization, Data Aggregation and Group Operations

## **TEXT BOOK**

Wes McKinney (2013), *Python for Data Analysis*, Mumbai: O'Reilly - Shroff Publishers & Distributors Pvt. Ltd.

## REFERENCE BOOKS

- 1) Kenneth A Lambert (2015), *Fundamentals of Python*, New Delhi: Cengage Learning
- 2) Davy Cielen, Arno D.B. Meysman, Mohamed Ali, *Introducing Data Science: Big Data, Machine Learning and More, Using Python Tools*, New Delhi: Wiley India
- 3) Guttag, John V (2016), *Introduction to Computation and Programming with Application to Understanding Data*, New Delhi: Prentice Hall of India
- 4) Will Richert, Luis Pedro Coelho, *Building Machine Learning Systems with Python*, Mumbai: PACKT / Shroff Publishers.

**BBA(BA) – VI SEMESTER**

**WEB AND SOCIAL MEDIA ANALYTICS**

**INTRODUCTION**

The World Wide Web along with social media produces huge amount of data every day. This data may provide lot of insight on not only the user's usage behavior but his/her tastes, preferences and thoughts. Web Analytics is a field in data analytics that will help in understanding user's attitudes and characteristics and help a business in targeting the potential customer.

**OBJECTIVES**

- 1) Understand the concept of web analytics
- 2) Understand clickstream and emerging analytics like social, mobile and video
- 3) Apply web analytics metrics using a tool

**LEARNING OUTCOMES**

- 1) Use different web metrics to understand a web site and its users
- 2) Perform clickstream analysis
- 3) Perform web analytics using a tool

**SYLLABUS**

**UNIT-I:**

**Introduction to Web Analytics:** Concept of web analytics, Importance and benefits of Web Analytics, Selecting a web analytic tool, Web Metrics – Visits and Visitors, Time on page and Time on site, Bounce Rate, Exit Rate, Conversion rate, Engagement, Attributes of metrics, Strategic elements related to web metrics – diagnosing root cause, leveraging customer reports, macro view of the site's performance

**UNIT-II:**

**Click stream Analysis and KPI's:** Understanding the web metrics of a web site, Producing web analytics report, Foundational Analytical strategies – Segmentation, Focus on Customer Behaviour, Different Clickstream Analysis, Web analytics challenges, Actionable outcome KPIs, understanding the conversion rates, measuring macro and micro conversions, quantifying economic value, measuring success for non – economic website

**UNIT-III:**

**Leveraging Qualitative Data, Testing and Experimentation:** Lab Usability Studies, Usability Alternatives, Surveys, Web-enabled emerging user research options, Testing – A/B Testing, Multivariate Testing, Actionable Testing ideas, Controlled Experiments, Creating and Nurturing a testing culture, Competitive Intelligent Analysis – CI data sources, types and secrets, web traffic analysis, search and keyword analysis

**UNIT-IV:**

**Emerging Analytics:** Social Analytics – Data challenge, content democracy evolution, twitter revolution, analyzing offline customer experiences, analyzing mobile customer experiences, Measuring the success of blogs, Quantifying the impact of Twitter, Analysing performance of videos, Hidden web analytics traps – accuracy or precision, Dealing with

data quality, Building action dashboard, Nonlinear marketing opportunity and multichannel measurement, Behaviour Targeting, Challenges in Online data mining and Predictive Analytics

**UNIT-V:**

**Principles of an Analyst:** Understanding the context, Comparing KPIs over time, measuring latent conversions, understanding the search analytics, Multitouch Campaign Attribution Analysis, Multichannel Analytics.

**TEXTBOOK**

Kaushik, A. (2013), *Web Analytics 2.0.*, New Delhi: Wiley India.

**REFERENCE BOOKS**

1. Kaushik, A. (2010), *Web Analytics: An hour a day*, New Delhi: Wiley India.
2. Waisberg, D. (2015), *Google Analytics Integration*, New Delhi: Wiley India.
3. Clifton, B. (2012), *Advanced Web Metrics with Google Analytics*, New Delhi: Wiley India.

**BBA(BA) – VI SEMESTER**  
**LOGISTICS AND SUPPLY CHAIN ANALYTICS**

**INTRODUCTION**

With increasing customer expectations and competitive environment, traditional supply chain execution systems are becoming obsolete. The supply chain is one of the important area for an organization since it plays an important role in the organization's costs and profits. Usage of analytics will help in understanding the data better and make predictions that will helps in the entire supply chain process.

**OBJECTIVES**

- 1) Get an overview of supply chain models and modeling systems
- 2) Know the different applications of supply chain models and use them

**LEARNING OUTCOMES**

- 1) Understand the importance of supply chain analytics and its application
- 2) Apply different supply chain models for different activities in supply chain management

**SYLLABUS**

**UNIT-I:**

**Introduction to Supply Chain Analytics:** SCOR (Supply Chain Operations Reference), Definition, Relevance, Significance and scope of Supply Chain Analytics

**UNIT-II:**

**Overview of Supply Chain Models and Modeling Systems:** Descriptive models, Optimization modes, Off-the shelf modeling system (SLIM)

**UNIT-III:**

**Application of Supply Chain Models – I:** A Calibration Model Establishes Position and Performance Gap, Logistics Models, from Manufacturing to Accepted Delivery, Models for Forecasting, Demand Management, and Capacity Planning, Models for Order Management and Inventory Management, DRP I & II, Procurement and Sourcing Techniques

**UNIT-IV:**

**Application of Supply Chain Models – II:** Models for Sales and Operations Planning, Advanced Planning and Scheduling Models, Models for Supplier Relationship Management

**UNIT-V:**

**Application of Supply Chain Models – III:** Models for Customer Relationship Management, Models for Collaborative Design and Manufacturing, Collaborative Planning, Forecasting, and Replenishment Models, Strategy for Effective Customer Service, Models for Logistics

**TEXTBOOK**

Jeremy Shapiro(2010), *Modeling the Supply Chain*, California: Brooks/ Cole Publishing - Cengage Learning

**REFERENCE BOOKS**

- 1) Muthu Mathirajan et al., (2016), *Analytics in Operations/Supply Chain Management*, New Delhi: IK International Publishing House
- 2) Feigin (2011), *Supply Chain Planning and Analytics*, New York: Business Expert Press.
- 3) Nada R Sanders(2014), *Big Data Driven Supply Chain Management: A Framework for Implementing Analytics and Turning Information Into Intelligence*, New Jersey: Pearson FT Press.

**BBA(BA) – VI SEMESTER**  
**FINANCIAL ANALYTICS**

**INTRODUCTION**

Financial analytics helps in analyzing the financial statements and forecast possible future financial scenarios. Financial analysis software can speed up the creation of reports and present the data in a graphical presentation that is easier to read and interpret.

**OBJECTIVES**

- 1) To understand financial performance and financial position
- 2) Forecast financial statements to make informed decisions
- 3) Develop skills in the area of Financial Analysis, Financial Statements and Financial Modeling

**LEARNING OUTCOMES**

- 1) Perform cash flow analysis and fund flow analysis
- 2) Assess quality of financial statements and perform forecasting
- 3) Build financial models in Excel.

**SYLLABUS**

**UNIT-I:**

**FINANCIAL STATEMENTS ANALYSIS:** Introduction -Analysis of Financial Statements using Ratios and Comparisons among Statements:-Prepare a comprehensive ratio analysis including liquidity, activity, leverage, profitability and market s and investor ratios.

**UNIT-II:**

**PREPARATION OF COMMON SIZE STATEMENTS:** Comparative and Common Size Statements and Percentage Changes and interpretation of comparative financial statements. Perform a basic analysis and interpretation of the financial statements,- comparative and common-size income statements and balance sheets.

**UNIT-III:**

**PREDICTIVE CASH FLOWS:**Statement of Cash Flows analysis: Indirect Method. Patterns of Cash Flows: Analysis of net cash flow from operating activities, net cash flow from investing activities and net cash flow from financing activities- Forecasting cash flow

**UNIT-IV:**

**PREDICTIVE FUNDS FLOW:** Statement of funds flow analysis: Changes in working capital and changes in other operating results and other changes.- Forecasting Funds Flow

**UNIT-V:**

**COMPREHENSIVE FINANCIAL MODELING USING EXCEL:** Introduction – How Financial Models Work - Collecting and Analyzing Historical Data - Selecting the Key Forecast Drivers -Modelling the Income Statement - Modelling the Balance Sheet -



Modelling Interest and Circular References - Modelling the Cash Flow Statement

**Note: Internal Assessment may be taken on the basis of Lab Exercises using Excel.**

**TEXTBOOK**

Michael Samonas (2015), *Financial Forecasting, Analysis and Modelling: A Framework for Long-Term Forecasting*, New Delhi: Wiley Publishing.

**REFERENCE BOOKS**

- 1) Mark J. Bennet, Dirk L. Hugen (2016), *Financial Analytics with R*, Cambridge: Cambridge University Press.
- 2) Chandan Sengupta (2011), *Financial Analysis and Modeling using Excel and VBA*, New Delhi: Wiley India.
- 3) Scott Proctor K (2010), *Building Financial Models with Microsoft Excel*, New Delhi: Wiley India

**BBA(BA) – VI SEMESTER**  
**HR ANALYTICS**

## **INTRODUCTION**

We are on the threshold of most exciting and promising phase of the evolution of human resources and human capital management. Today there is a shift of the attention towards predictability. The course is designed to study about predictive management, that is, managing today and tomorrow. It is also known as HCM: 21. It is holistic predictive management model and operating system for human resources function. HCM: 21 is a four-phase process that starts with scanning the market place and ends with an integrated measurement system. In the middle it addresses workforce and succession planning in a new way and shows how to optimize and synchronize the delivery of HR services.

## **OBJECTIVES**

- 1) To understand the Concepts of predictive analytics and HCM: 21.
- 2) To analyse predictive management model and its process and HCM:21 process
- 3) To make a detailed study of case studies from Government and private companies.

## **LEARNING OUTCOMES**

- 1) Understand the metrics and use it for predictive analytics
- 2) Understand the application of HCM model

## **SYLLABUS**

### **UNIT-I:**

**Meaning of Analytics:** Classification; Importance HCMs; Role and Perspective of HCMs.

### **UNIT-II:**

**The HCM Model:** The Employee Value Proposition; Compensation, Attracting, Motivating and retaining employees now and in the future.

### **UNIT-III:**

**The new face of work force planning;** The workforce planning; segmentation of skills, The business playbook; the contents and process of creating a playbook.

### **UNIT-IV:**

**Quality employee engagement:** Employee Engagement Definition and Measurement; Engagement Drivers; Disorder and Disengagement; Behaviour Based Signs of Departure, Event based Signs of Departure, Databased Signs of Departure;

### **UNIT-V:**

**Meaning of Metrics:** The our Human Capital Performance Metrics; The Second Generation and Third Generation Metrics Connecting the Metrics; Predictive Analytics for Human Capital Management.

**TEXTBOOK**

Jac Fitz-Enz. (2010), *The New HR Analytics: Predicting the Economic Value of your Company's Human Capital Investment*, USA: Amacom.

**REFERENCE BOOKS**

- 1) Smith, T. (2013), *HR Analytics: The What, Why and How*, USA: CreateSpace Independent Publishing Platform.
- 2) Jac Fitz-Enz. (2014), *Predictive Analytics for Human Resources*, New Delhi: Wiley India.
- 3) Laurie Bassi (2012), *HR Analytics Handbook*, USA: McBassi and Company.

**BBA(BA) – VI SEMESTER  
HEALTHCARE ANALYTICS**

**INTRODUCTION**

Healthcare organisations are extensively using information systems to provide better services to patients. Data stored in these information systems is very critical and providing accurate and timely analysis of the data is required to maintain the health of the patient as well as the health of the organization. Analytics plays an important role in achieving this objective.

**OBJECTIVES**

- 1) Understand the importance of analytics in the domain of health care.
- 2) Develop and use different effective indicators related to provide quality in healthcare.

**LEARNING OUTCOMES**

- 1) Understand the different applications of healthcare
- 2) Develop analytics strategy for maintaining quality of data
- 3) Use different methods for analysing the healthcare data.

**SYLLABUS**

**UNIT-I:**

**Introduction to Healthcare Analytics:** Definition of healthcare analytics, benefits of healthcare analytics and its goals, the drivers of healthcare transformation, quality initiatives that have shaped the national health care landscape, health care quality and value, background and evolution of quality and performance improvement, quality improvement frameworks that utilize analytics, how analytics can help transform health care.

**UNIT-II:**

**Health care data as an organizational asset:** Data, information, knowledge and wisdom hierarchy, how data can be an organizational asset, sources of healthcare data, Challenges faced when using data for quality and performance improvement, organizational approach for effective use of data analytics, the role of data governance.

**UNIT-III:**

**Working with data:** Information value chain, importance of data context and relevance to business processes, common data types, basic statistical terms, recognize common patterns or distributions in statistics, distributions using numerical measures such as mean median and standard deviation, identify common graphical representations of data including histograms, bar charts and scatter plots.

**UNIT-IV:**

**Data analytical tools and techniques:** Define data analytics terms, process steps of data analytics and tools used in each step, Role of data analyst, identify tools and techniques used to analyse and interpret healthcare data effectively, describe the various types of databases and how they are structured, key data warehouse concepts, enterprise data architecture as seen in health care organizations, Using data to solve problems - Define measures, metrics and indicators, describe purpose and use of key performance indicators(KPI), how healthcare organizations use IHI Triple aim to prioritise performance goals, DMAIC problem solving model and the tools and techniques used in each step of the process, Apply the DMAIC methodology to a health care issue.

**UNIT-V:**

**Methods and Presentation of Information:** Describe the various ways to effectively display data for improved comprehension, select appropriate options for displaying information, identify back ground information that should be included in the reports, determine what information stakeholders want and need to know, determine the best ways to communicate information with specific audiences.

**TEXTBOOK**

Trevor L. Strome, *Healthcare Analytics for Quality and Performance Improvement*, New Delhi: Wiley India.

**REFERENCE BOOKS**

- 1) Laura B. Madsen (2015), *Data Driven Healthcare: How Analytics and BI are transforming the Industry*, New Delhi: Wiley India.
- 2) Thomas H Davenport, Dwight McNeil (2013), *Analytics in healthcare and life sciences*, New Jersey: Pearson FT Press

**BBA(BA) – VI SEMESTER  
ECONOMETRICS**

**INTRODUCTION**

Econometrics is the application of mathematical and statistical model on economic data to draw useful insights. It helps in understanding the economic data and its relations better.

**OBJECTIVES**

- 1) To understand the basics of econometrics
- 2) To understand the presence of causality and co integration between variables
- 3) To forecast financial data using econometric techniques and measure their effectiveness

**LEARNING OUTCOMES**

- 1) Perform linear regression model on a given data
- 2) Test causality using different techniques
- 3) Perform forecasting using different models

**SYLLABUS**

**UNIT-I:**

**Introduction to Econometrics** - nature and scope of Econometrics. Different data types – cross section, time series and panel data. Simple Linear Regression model and Multiple Linear Regression Model. Estimation of parameters - goodness of fit – R<sup>2</sup> and adjusted R<sup>2</sup> - partial regression coefficients; testing hypotheses.

**UNIT-II:**

**Classical Linear Regression Model (CLRM)** - Practical Aspects of the CLRM Model Assumptions - detection and remedies - Multicollinearity, Heteroscedasticity, Autocorrelation and Model Selection.

**UNIT-III:**

**Deterministic and Stochastic Trends** - Stationarity - Unit Roots – Testing of stationarity using Dickey-Fuller - Augmented Dickey-Fuller Tests – Phillips perron test.

**UNIT-IV:**

**Testing Causality** - Granger's Causality Test- Vector Auto regression Technique –Vector Error Correction Model. Testing for Co integration - Engel-Granger Co integration test – Johanson Co integration test – Auto Regressive Distributed Lag (ARDL) model.

**UNIT-V:**

**Forecasting** - Autoregressive Models - Moving Average Models - Autoregressive-Moving Average Models - Autoregressive Integrated Moving Average Models – Auto Regressive Conditional Heteroscedasticity (ARCH) model and Generalized Auto Regressive Conditional Heteroscedasticity (GARCH) model.

### **TEXT BOOK**

Christopher Dougherty (2011), *Introduction to Econometrics*, New Delhi: Oxford University Press.

### **REFERENCE BOOKS**

1. D. N. Gujarati and D.C. Porter (2010), *Essentials of Econometrics*, New Delhi: Tata McGraw Hill.
2. Peijewang (2008), *Financial Econometrics: Methods and Models*, London: Routledge – Taylor & Francis Group.
3. Martin, Vance, Hurn, Stan, & Harris, David (2013), *Econometric Modelling with Time Series : Specification, Estimation and Testing*, Themes in Modern Econometrics, New York: Cambridge University Press.

**BBA(BA) – VI SEMESTER  
MARKETING METRICS**

**INTRODUCTION**

In recent years, data-based marketing has swept through the business world. In its wake, measurable performance and accountability have become the keys to marketing success. In this environment Management students need a comprehensive, practical reference on the metrics used to quantify their results.

**OBJECTIVES**

- 1) To give students an understanding of measurable functions of Marketing
- 2) To develop quantitative analytical skills needed to Market productively
- 3) To analyse and aid in taking Marketing decisions

**LEARNING OUTCOMES**

On completion of this course the student would be able to

- 1) Explain the concepts of marketing accountability and credibility.
- 2) Review critically the theoretical and empirical marketing performance literatures.
- 3) Use key marketing metrics
- 4) Demonstrate research, work management, presentation, and collaboration skills

**SYLLABUS**

**UNIT-I:**

**Introduction to Metrics:** Share of Hearts Minds and Markets-Market Share, Relative Market share, Market concentration, Brand Development Index, Category Development Index, Penetration, Share of requirements, Heavy Usage Index, Awareness Attitudes and usage, Customer satisfaction ,Willingness to recommend Net promoter, Willingness to search.

**UNIT-II:**

**Product and Portfolio Management:** Trial, Repeat ,Penetration and volume projections, Growth Percentage and CGR, Cannibalization Rate and Fair share draw rate, Brand equity Metrics, Conjoint utilities and consumer preference, Segmentation and conjoint utilities, Conjoint utilities and volume projections.

**UNIT-III:**

**Margins and Profits:** Margins ,Selling Price and Channel Margins Average Price per unit and price per statistical unit, Variable costs and fixed costs, Marketing spending-Total, fixed and variable, Breakeven analysis and contribution analysis ,Target Volume.

**UNIT-IV:**

**Advertising Media and web metrics:** Advertising Impressions, gross rating, points and opportunities to see, Cost per thousand impressions, Reach net reach and frequency, hare of voice, Impressions page views and hits, Rich Media Display time, Rich Media Interaction rate, Click through rates, Cost per impressions, Cost per click and cost of



acquisition, Visits, Visitors and abandonment bounce rate, Friends ,followers and supporters, downloads.

**UNIT-V:**

**Promotion:** Baseline sales , Incremental sales, and promotional lift, Redemption rates for coupons/rebates, Percent sales on deal Percent time on deal and average deal depth, Pass through and price waterfall.

**TEXT BOOK**

Farris W. Paul (2011), *Marketing Metrics: The Definitive Guide to Measuring Marketing Performance*, New Delhi: Pearson Education.

**REFERENCE BOOKS**

1. Winston L Wayne (2015), *Marketing Analytics: Data Driven Techniques with Microsoft Excel*, New Delhi: Wiley India.
2. Stephen Sorger (2013), *Marketing Analytics: Strategic Models and Metrics*, USA: Create Space Independent Publishing Platform.

**BBA(BA) – VI SEMESTER  
ELEMENTS OF ACTUARIAL SCIENCE**

**INTRODUCTION**

Actuarial science is the discipline that applies mathematical and statistical methods to assess risk in insurance, finance and other industries and professions. Actuaries serve an important role with predictive analytics by using modeling and data analysis techniques on large data sets to discover predictive patterns and relationships for business use. The actuarial profession has been actively advancing the use of predictive analytics methods in its work.

**OBJECTIVES**

- 1) To enable the students to understand the practice in handling of insurance business problems
- 2) To use the results of actuarial calculations in evaluating various options in reaching financial decisions, whether personal or business- related

**LEARNING OUTCOMES**

- 1) Understand the theory of interest rates and types of annuity
- 2) Perform actuarial calculation for decision making

**SYLLABUS**

**UNIT-I:**

**Theory of interest rates** – Rate of interest; Amount; Present value; Nominal and Effective rates of interest; Effective rate corresponding to nominal rate and vice – versa; Discount and Discounted value.

**UNIT-II:**

**Annuity:** Definition, Types of annuity, Definition of Annuity Immediate, Annuity Due, Deferred Annuity certain and Deferred Annuity Due; Present value and Accumulated Value of an Immediate Annuity Certain, Annuity Due, Deferred Annuity Certain and Deferred Annuity Due. Simple derivations

**UNIT-III:**

**Perpetuity:** Definition, types of Perpetuity, Definition of Immediate Perpetuity, Perpetuity Due, Present value of an Immediate Perpetuity and Perpetuity Due; Deferred Perpetuity with deferment period of „m“ years. Simple derivations

**UNIT-IV:**

**Variable Annuities:** Increasing Annuity, Present value of an immediate increasing perpetuity, Present value of an increasing annuity due, Present value of an increasing perpetuity due, Present value of an increasing annuity where in the successive payments form Arithmetic and Geometric progression. Simple derivations

**UNIT-V:**

**Mortality:** Rates and ratios of mortality Life table and its Construction.

**Note**

1. This paper is without a case study.

**TEXTBOOKS**

1. Mathematical Basics of Life Assurance IC- 81 by S.P Dixit, C.S. Modi, R.V. Joshi, Insurance Institute of India 2007
2. Actuarial Principles and practice, The Institute of Certified Risk and insurance managers, ICRIM 2007

**REFERENCE BOOKS**

1. Gupta and Kapoor ,Fundamentals of applied statistics, , Sultan and Chand,2007
2. Pathak and F. Resh ,Demographic Methods, Sultan and Chand,2007
3. J. J. MC Cutcheon and W.F. Scott, Introduction to Actuarial mathematics and finance, Butterwort. Rein Mann Ltd, 2007.
4. Benjimen & J.H.Pollard Analysis of mortality & Other Actuarial Statistics, Butterwort. Rein Mann Ltd,2007.