



JECRCTM
UNIVERSITY
BUILD YOUR WORLD

School of Management

Syllabi and Course Structure

Bachelor of Commerce

Finance & Analytics

Academic Programmes

Batch (2022-2025)

Summary Sheet

Semester	1 st	2 nd	3rd	4th	5th	6th	Total	Min. Credit Req. For Degree
Credit	22	27	24	27	24	24	148	*10% relaxation for Mooc, NPTEL & Swayam courses

Type	Foundation	Core	Specialization	Interdisciplinary	General
Total Credit	31	40	52	12	22

Semester I

FIRST SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM615B	Business and Technology	3	-	-	3	F
BCM616A	Financial Accounting	3	1	-	4	C
BCM618A	Introduction To Business Analytics	2	1	2	3	S
BCM619	Business Mathematics & Statistics	3	1	-	4	F
BCM617	Corporate And Business Law	3	1	-	3	ID
DEN001A	Communication Skills	3	-	-	3	G
DIN001A	Culture Education – 1	-	-	4	2	G
	TOTAL	17	4	6	22	

Semester II

SECOND SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 620A	Organisation Behaviour	4	-	-	4	F
BCM 622A	Management Accounting	3	1	-	4	C
BCM 621A	Marketing Management	3		-	3	F
BCM 623A	Corporate Accounting	4	-	-	4	C
BCM 624A	Business Analytics Using Excel	2	-	2	3	S
DEN002A	Professional Skills	3	-	-	3	G
DIN002A	Culture Education – 2	-	-	4	2	G
DCH001	Environmental Studies (EVS)	3	-	2	4	F
	TOTAL	22	1	8	27	

Semester III

THIRD SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 625A	Banking & Financial Services	3	1	-	3	F
BCM 626A	E-Business & Cyber Laws	3	1	-	3	ID
BCM 627A	Research Methodology	3	1	-	4	F
BCM 628A	Programming For Business Analytics	2		4	4	S
BCM 629A	Business Statistics With R	3		2	4	S
***	Open Elective	3	-	-	3	G
DEN003A	Life Skills-1 (Personality Development)	2	-	-	2	G
DIN003A	Value Education – 1	1	1	-	1	G
	TOTAL	20	4	6	24	

Semester IV

FOURTH SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 630A	Entrepreneurship	3	1	-	3	F
BCM 631A	Business Variables Analytics	2	1	2	4	S
BCM 632A	Audit And Assurance	3	1	-	4	C
BCM 633A	Financial Predictive Analytics	3		2	4	S
BCM 634A	E-Accounting	3	1	-	3	C
BCM 635A	Logistics And Supply Chain Management	3	1	-	3	ID
***	Open Elective	3	-	-	3	G
DEN004A	Life Skills - 2 (Aptitude)	2	-	-	2	G
DIN004A	Value Education – 2	1	1	-	1	G
	TOTAL	23	6	4	27	

Semester V

FIFTH SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 636A	Machine Learning For Business Analytics	2	1	2	4	S
BCM 637A	Income Tax	3	1	-	4	C
BCM 638A	Financial Econometrics	3	1	-	4	S
BCM 639A	Marketing Analytics	3	1	-	4	S
BCM 640A	Human Resource Management	3	1	-	3	C
BCM 699A	Summer Training	-	-	10	5	C
	TOTAL	14	5	12	24	

Semester VI

SIXTH SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 641A	Logistics And Supply Chain Analytics	3	1	-	4	S
BCM 642A	Accounting And Fraud Analytics	3	1	-	4	S
BCM 643A	Big Data	3		2	4	S
BCM 644A	Hr Analytics	3		2	4	S
BCM 645A	Project Management	4		-	3	C
BCM 646A	Project	-	-	5	5	C
	TOTAL	16	2	9	24	

Program Educational Objective (PEO)-B.Com Finance and Analytics

To build a strong footing of understanding in different areas of Commerce

To develop the skill of applying concepts and practices used in Commerce

To develop an attitude for working commendably and proficiently in a business surroundings

To integrate knowledge, skill and attitude that will stand an environment of learning and creativity among the students.

To enable a student to be capable of making decisions at personal and professional level.

Program Outcome (PO) B.Com Finance and Analytics

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.

Elicit views of others, mediate disagreements and help reach conclusions in group settings

Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering

Develop as an individual with the conceptual as well as practical knowledge in the field of analytics, comprising of business studies and metrics, statistics, information technology and management.

Develop the ability to adapt to the rapidly changing industry with the newly learned applied skills in the domains of analytics and business studies.

Develop critical thinking skills to take up the role as Business Analysts and Professionals in the Business Domains.

Apply analytics to analyze and interpret data using latest analytical tools to solve complex business problems pertaining to Finance, Marketing, Commerce, etc.

Perform Descriptive, Predictive and Prescriptive Analysis based on structured, semi-structured and unstructured data types.

Classify and employ the use of various tools and programming languages such as SQL, SAS, Python and R Programming to implement and deploy analytical models and algorithms.

Articulate, illustrate and demonstrate the ability to develop advanced analytical models based on specialized domains such as Financial Predictive Analytics, Marketing Analytics, Machine Learning, etc.

Compare, evaluate and report the inferences obtained from different machine learning algorithms and gain the ability to incorporate them so as to achieve proper decision making with regards to the said business domain such as Finance, Marketing, Accounting, Commerce, etc.

Semester I

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Sub Code	Sub Name	L	T	P	C	Type
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DIN001A	Culture Education – 1	-	-	4	2	G
	TOTAL	17	4	6	22	

Business and Technology

SUBJECT CODE: BCM615B

CREDITS: 3

Unit 1: The business organisation, its stakeholders, and the external environment

The purpose and types of business organisation -Stakeholders in business organisations -Political and legal factors affecting business -Macroeconomic factors -Micro economic factors -Social and demographic factors -Technological factors -Environmental factors -Competitive factors

Unit 2: Business organisational structure, functions and governance

The formal and informal business organisation- Business organisational structure and design- Organisational culture in business -Committees in business organisations -Governance and social responsibility in business

Unit 3: Accounting and reporting systems, compliance, control, technology and security

The relationship between accounting and other business functions -Accounting and finance functions within business organisations -Principles of law and regulation governing accounting and auditing - The sources and purpose of internal and external financial information, provided by business - Financial systems, procedures and related IT applications -Internal controls, authorisation, security of

data and compliance within business -Fraud and fraudulent behaviour and their prevention in business, including money laundering. -The impact of Financial Technology (Fintech) on accounting systems

Unit 4: Leading and managing individuals and teams & Personal effectiveness and communication

Leadership, management and supervision -Recruitment and selection of employees -Individual and group behaviour in business organisations -Team formation, development and management - Motivating individuals and groups -Learning and training at work -Review and appraisal of individual performance- The application and impact of Financial Technology (FinTech) in accountancy and audit -Personal effectiveness techniques- Consequences of ineffectiveness at work -Competence frameworks and personal development -Sources of conflicts and techniques for conflict resolution and referral -Communicating in business

Unit 5: Professional ethics in accounting and business

Fundamental principles of ethical behaviour -The role of regulatory and professional bodies in promoting ethical and professional standards in the accountancy profession -Corporate codes of ethics- Ethical conflicts and dilemmas

Financial Accounting

SUBJECT CODE: BCM616A

CREDITS: 4

Unit 1: Purpose of financial accounting

Define financial accounting – purposes of financial statements for the users – main elements of financial reports – conceptual framework – definitions of asset, liability, equity, income & expenses-prudence.

Unit 2: Qualitative characteristics of financial statements

Concepts of relevance, faithful presentation, materiality, substance over form, going concern, business entity, accruals, consistency, comparability, verifiability, understandability and timeliness

Unit 3: Accounting records & double entry accounting system

Main data sources for accounting – different business documents such as sales order, purchase order, goods received note, quotation, goods despatched note, invoice, credit & debit notes, receipt, remittance advice, cash vouchers – understand the double entry accounting & duality concept – types of transactions such as sales, purchases, payments & receipts.

Unit 4: Recording transactions

Recording into journals – ledger accounts – balancing of ledger accounts – accounting for discounts, sales tax – recording cash transactions – accounting & valuation of inventories – accruals & prepayments – tangible & non-tangible assets – depreciation & amortisation accounting – receivables & payables – provisions & contingencies – errors & rectification – bank reconciliation statements

Module 5: Trial balance, financial statements

Statements of profit or loss and other comprehensive income, cash flow statements, balance sheet – events after reporting period – interpretation of financial statements – use of basic ratios related to

profitability, liquidity, activity and resource utilisation-Describe the principle of the equity method of accounting for Associate entities

Introduction to Business Analytics

SUBJECT CODE: BCM618A

CREDITS: 3

Module Overview

This subject covers the complete life cycle of Business Intelligence/Analytics, covering Operational/Transactional Data Sources, Data Transformation, Data Mart/Warehousing design-build, Analytical Reporting and Dashboards. It will also help the students to develop deeper understanding on these concepts using Business Intelligence Tools.

Unit 1:Introduction & Data Type

Overview of Business Analytics, Key Purpose of Using IT in Business, Enterprise Applications (ERP/CRM) and Bespoke IT Applications, Digital Data, Overview of Database, Structured data, Unstructured data, Semi-Structured data, Difference between different types of data.

Unit 2 :Introduction to OLTP, OLAP & BI

OLTP (On-Line Transaction Processing), OLAP (On-Line Analytical Processing), OLAP Architecture, Data Models for OLTP and OLAP, Role of OLAP Tools in the BI Architecture, OLAP Operations on Multidimensional data, Leveraging ERP Data using Analytics, Defining Business Intelligence (BI), Evolution of BI and Roles of DSS, EIS, MIS, and Digital Dashboards, The BI Value Chain, BI component Framework, BI Applications, Roles & Responsibilities, Popular BI Tools.

Unit 3 :Basics of Data Integration & Multidimensional Data Modeling

Data Warehousing, Data Mart, Operational Data Storage, Data Mapping & Data Staging, Data Integration & Technologies, Data Quality & Data Profiling, Data Modeling Basics, Types of Data Model & Data Modeling Techniques, Fact Table & Dimension Table, Typical Dimension Models and Dimension Modeling Life Cycle.

Unit 4:Measures, Metrics, KPIs, and Performance Management & BI Road Ahead

Understanding Measure and Performance, Measurement System Terminology, Navigating a Business Enterprise, Role of Metrics, and Metrics Supply Chain, Fact based Decision Making and KPIs, Measures to Business Decisions and Beyond, Understanding BI and Mobility, BI and Cloud Computing, BI for ERP Systems, Social CRM & BI.

Unit 5 :Basics of Enterprise Reporting

Reporting Perspectives, Report Standardization and Presentation Practices, Enterprise Reporting Characteristics in OLAP World, Balanced Scorecard, Dashboards, Creating Dashboard, Scorecards vs. Dashboards, The Buzz Behind Analysis, Creating Enterprise Reports.

Case Studies and Exercises

Business Mathematics & Statistics

SUBJECT CODE: BCM619

CREDITS: 4

Unit 1: Set Theory

Introduction to Sets, Sets and their Representation, Tabular or Roster Method, Rule Method or Set Builder, Empty or Void or Null Set, Finite sets and Infinite sets, Proper Subset, Improper Subset, Power Set, Universal Set, Open Interval, Closed Interval, Semi-Open or Semi Closed intervals, Infinite Intervals, Venn Diagrams, Operations on Sets, Union, Intersection of Sets, Disjoint Sets, Difference of Sets, Symmetric Difference of Sets, Complement of a Set, Laws of Algebra of Sets.

Unit 2: Matrices and Determinants

Definition of a Matrix, Addition & Subtraction of Matrices, Multiplication of Matrices, Transpose of a Matrix. System of linear equations, Gauss elimination method, Inverse of a Matrix, Determinants, Determinants of order one and more, Properties of Determinants, Multiplication of two Determinants, Minors and Cofactors, Cramer's rule for solution of linear equations, Adjoint of a Matrix, Rank of a Matrix.

Unit 3: Vector Algebra

Vectors, Types of Vectors, Operations on Vectors, Addition of Vectors, Properties of Operation of Addition, Subtraction, Properties of Operation of Subtraction, Multiplication by a scalar, Orthonormal Bases, Product of Two Vectors, Scalar Product or Dot Product of Two Vectors, Properties of Scalar Product, Vector Product or Cross Product, Properties of Vector Product.

Unit 4: Statistics

Introduction to Statistics, Scale of Measurement, Nominal, Ordinal, Interval & Ratio. Frequency Distribution, Bar Chart, Pie Chart, Histogram, Frequency Polygon, Ogive, Pareto Chart, Stem-and-leaf Chart, Scatter Plot, Measure of Central Tendency, Properties, Advantages and Disadvantages of Arithmetic Mean, Geometric Mean, Harmonic Mean. Positional Averages, Median, Quartiles, Deciles, Percentiles & Mode. Measure of Dispersion, Range, Interquartile Range, Standard Deviation.

Unit 5: Probability

Introduction to Probability, Experiment, Event, Compound Event, Independent and Dependent Events, Mutually Exclusive Events, Equally Likely Events, Marginal, Union, Joint, Conditional Probability, Basic Probability Rules, General Rule of Addition, General Rule of Multiplication, Concept of Baye's Theorem.

Corporate and Business Law

SUBJECT CODE: BCM617

CREDITS: 3

Unit 1: Nature of the contract and consideration

The Indian contract act 1872 – Definition of contract - Essential elements of a valid contract – clarification of contracts – offer and acceptance and Communication of offer and Acceptance and Revocation.

Consideration – Capacity to contract – Free consent - Legality of object –void agreement.

Performance of contract – offer to perform contracts which need not be performed – by whom contract must be performed who can demand performance. Discharge of Contract – meaning – methods – by performance –by agreement – impossibility of performance.

Unit 2: Breach of contract and the sale of goods act

Remedies for Breach of Contract – Introduction Recession – Damages – Specific Performance – injunction - Quasi contracts. Contract of Indemnity and guarantee – Contract of bailment and pledge – Contract of Agency – Creation of agency – Rights, duties and liabilities of an agent - Termination of agency.

Sale of Goods Act :

Formation of contract of Sale - caveat emptor - Express and implied conditions and warranties – Performance of Contract of Sale – Rights of an unpaid Seller.

Unit 3: Companies act and memorandum of association

Meaning, Definition & Salient Features of Companies Act, 2013 - Kinds of Companies - Promotion, Role of Promoters-Incorporation of a Company.

Memorandum of Association, Contents & Alteration - Articles of Association, Contents & Alteration - Prospectus, Contents & Consequences of misstatement - Doctrine of Ultra Virus & Indoor Management.

Unit 4: Directors and corporate governance

Directors-Appointment, Qualification-Disqualification - Membership in a Company, Modes of acquiring Membership - Rights and Liabilities of Members, Termination of Membership - Corporate Governance- Meaning, benefits of good governance, factors influencing corporate governance.

Unit 5: General and Statutory Meeting, Extraordinary Meetings

General and Statutory Meeting, Extraordinary Meetings -Resolutions, Meaning and Kinds - Role of Company Secretary with respect to meetings. Meaning and modes of winding up - Powers of court in winding up - Consequences and procedures for winding up - Powers, Liabilities and Duties of Liquidators.

Communication Skills

SUBJECT CODE: DEN001A

CREDITS: 3

Course Objectives

1. To enhance English language competence in reading, writing, listening and speaking.
2. Switch the approach from teacher-centred to student-centred one.
3. Minimize the Grammar Translation Method of ELT while trying to replace it with Direct Method.
4. Introduce Communicative Method of ELT and focusing the teaching pedagogy on the student-centred learning rather than on the teacher-centred learning.
5. To link communication skills with the organizational behaviour.
6. To inculcate skills that are very much required for employability and adjust in the professional Environment.

Course Outcomes (CO):

At the end of this course students will have:

CO1: Ability to design a language component or process to meet desired need within realistic, Constraints such as economic, environmental, social, political, ethical, scenario

CO2: Ability to analyze the usage of English words in different contexts.

CO3: An understanding of technical and academic articles' comprehension.

CO4: The ability to present oneself at multinational levels knowing the type of different standards of English

Syllabus: Theory

UNIT 1	Basics of Organizational Communication: Communication: Meaning, Elements, Process, Types, Flows of Communication and Barriers to communication, basics of professional communication and professional ethics including Time-management, Respect for deadlines and corporate culture
UNIT 2	Basic Writing Skills: Parts of Speech, Elements of Sentences, Sentence types based on meaning and structure, Tenses, Voice, Narration
UNIT 3	Composition: , Basics of Letter Writing, Email Writing, Précis Writing, Essay Writing,
UNIT 4	Vocabulary Building: Word Formation from one word form to another, Origin of Words, Affixes, Synonyms, Antonyms
UNIT 5	Professional and Technical Communication : Basics of Drafting a CV/Resume, Basics of Telephonic Interview and Online Interview, Basics of PPT presentation

Syllabus: Lab

UNIT 1	Basics of Organizational Communication: Role Plays and presentations related to different corporate related matters- How to greet, how to deny politely, how to handle different types of problems related to the types of communication, how to avoid grapevine and use it in a positive manner, how to keep positive mindset during work pressure, Activities to teach Time- management, Following Deadlines etc
UNIT 2	Write Dialogue from the different contexts of corporate culture: Employee and Employer, Customer and Service Provider, Customer and Product Review, How to react on Day to day corporate interactions- Memo, Notice, Email, Circular etc

UNIT 3	Composition: , Letter Writing, Email Writing, Précis Writing, Essay Writing, Practice sessions by using Ms Word- Following the process of Drafting- Redrafting, Proof Reading, Editing etc
UNIT 4	Vocabulary Building: Word Formation from one word form to another, Origin of Words, Affixes, Synonyms, Antonyms- Using video clips and comprehension passages to find out the difference between words, similarity between words, origin of words, neologism concepts etc
UNIT 5	Professional and Technical Communication : Drafting a CV/Resume, Practice Sessions on Telephonic Interview and Online Interview, Presenting projects, proposals etc through PPT Making,

Methodology for Evaluation

Assesment Theory

1. Internal Assessment (Theory)
 - a) Home Assignments: One from each Unit: 15 Marks
 - b) In Semester Tests (Minimum two) : 30 Marks
 - c) Attendance : 05 Marks
2. Term End (Theory) : 50 Marks

Assessment Lab

1. Internal Assessment (Lab)
 - (a) Daily Performance in the Lab : 50 Marks
2. Term End (Lab) : 50 Marks

Suggested Reading:

1. Practical English Usage. Michael Swan. OUP. 1995
2. Remedial English Grammar. F.T. Wood. Macmillan. 2007
3. Raymond V. Lesikar and Marie E. Flatley. Basic Business Communication, Tata McGraw Hill Pub. Co. New Delhi. 2005. Tenth Edition.
4. On Writing Well. William Zinsser. Harper Resource Book. 2001
5. Study Writing. Liz Hamp-Lyons and Ben Heasley. Cambridge University Press. 2006.
6. Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press. 2011.
7. Exercises in Spoken English. Parts. I-III, Hyderabad. Oxford University Press.
8. Syamala, V. Speak English in Four Easy Steps, Improve English Foundation Trivandrum: 2006

Cultural Education-1

SUBJECT CODE: DIN001A

CREDITS: 2

Course Objectives

1. To make the students feel gratitude towards the rich religious and cultural heritage of India.
2. To understand the role of great personalities and movements in the progress of India.

Course Outcomes (CO)

At the end of this course students will have:

CO1: Ability to acknowledge and appreciate the richness of Indian Culture

CO2: Ability to represent the culture ethics in real life

UNIT-I : Holy Scriptures-A

Introduction to Vedanta and Bhagavad Gita, Goals of Life – Purusharthas, Introduction to different Dhram Granthas (Various religious scriptures from Hindu, Muslim, Christian, Bodh, Jain religions), Introduction to Yoga, Overview of Patanjali's Yoga Sutras

UNIT-II : Society and Culture-I

Introduction to Indian Culture and Major Symbols of Indian Culture; Major Indian Cultural and Ethical Values- Respect, Compassion, Kindness, Forgiveness, Introspection, Honesty, Justice, Loyalty, Devotion, Self Sacrifice, Hospitality, Vasudhev Kutumbkum

UNIT-III : India in Progress-I

Education , Science and Technology in Ancient India; Values from Indian History- War of Mahabharata, War of Kalinga, Freedom Struggle of India, Major Farmer Movements, Major Religious and Social Upliftment Movements

UNIT-IV: Great Indian Personalities-I

Life and works of the Great People of Ancient India- Sushruta, Dadhichi, Ashtvakra, Anusuya, Panini, Charaka, Kalidas, Aryabhatta, Samudragupta, Ashoka, Chandragupt Mourya, Porus, Satyabhama, Dhruv, Prahlad,Chankya,Varahmihira, Bhism, Karan, Dronacharya, MeeraBai, Surdas, Dadudayal, Kabir, Mahatma Budhha, Mahavir,Guru Nanak Dev, Guru Gobind Singh, Mohammad Saheb, Jesus Christ, Veer Shivaji, MaharanaPratap, Maharani LaxmiBai, MaharaniPadmini, Hadi Rani ShalKanwar, PannaDhai

*Each student shall write a detailed Report/ Critique on one topic from section -A to C and one Great Personality from Section- D leading to publication of Newspaper/ Magazine article or a review paper in a Research Journal. In addition to s/he will be required to make a Power Point Presentation on the learning and face Viva-voce by committee of teachers.

Suggested Reading:

1. Glory of Indian Culture (English) Paperback byGiriraj Shah
2. Historicity of Vedic and Ramayan Eras: Scientific Evidences from the Depths of Oceans to the Heights of Skies by SarojBala , Kulbhushan Mishra

References <https://knowindia.gov.in/culture-and-heritage/lifestyle-values-and-beliefs.php>

Semester II

SECOND SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 620A	Organisation Behaviour	4	-	-	4	F
BCM 622A	Management Accounting	3	1	-	4	C
BCM 621A	Marketing Management	3		-	3	F
BCM 623A	Corporate Accounting	4	-	-	4	C
BCM 624A	Business Analytics Using Excel	2	-	2	3	S
DEN002A	Professional Skills	3	-	-	3	G

DIN002A	Culture Education – 2	-	-	4	2	G
DCH001	Environmental Studies (EVS)	3	-	2	4	F
	TOTAL	22	1	8	27	

ORGANISATION BEHAVIOUR

SUBJECT CODE: BCM 620A

CREDITS: 4

Course Objective:

Understand how the organisations can be managed effectively considering the behaviour of various stakeholders of an organisation and analysing the skills required for the future advantage of an organisation.

Unit 1: Organization behavior – an introduction

Meaning of organizations – Nature of organization behavior – Basics of organization behavior – Scope and evolution of organizational behavior – Organizational arrangements and Organization behavior – Key terminologies in Organization Behavior - Organizational Behavior Model (OB Model)

Unit 2: Individual behavior, intelligence and personality

Meaning of individual behavior – personal and environmental factors – Models of individual behavior – nature and types of intelligence – theories and measurement of intelligence – Intelligence factors – intelligence in the context of organizational behavior.

Nature and determinants of personality – Personality traits – Personality in the context of Organization Behavior

Unit 3: Motivation and work stress

Nature and importance of motivation – challenges and theories of motivation – Motivation and organizational culture – quality of work life – rewards and behavior modification – problem employees – employee engagement Meaning of work stress – work stress model – stress management – Stress and organizational behavior

Unit 4: Group and team behavior

Nature and types of groups – Group dynamics and Organization behavior – determinants of group dynamics – Importance of group dynamics in an organization – group development strategies – Group motivation – Group structuring and decision making.

Meaning of team – differences between group and team – Types and benefits of teams – effective team management – team conflicts and resolution – Team development and Organizational Behavior

Unit 5: Organizational culture and leadership

Meaning of leadership – leadership vs management – leadership styles and theories – formal and informal leadership – Ethics and leadership – leadership and organizational culture – Sustaining culture – changing organizational culture – workplace behaviour – Ethics of power.

Course outcomes:

CO 1: Understand the basic of organizational behaviour in the context of the dynamic environment.

CO 2: Understanding the role of individual behaviour, intelligence and personality in the context of organizational development.

CO 3: Understanding importance of rewarding and motivating the stakeholders and managing the stress to effectively manage the organizational performance

CO 4: Understand the role of group and team dynamics in the current organizational environment

CO 5: Understand the importance of perception into organizational culture, leadership and ethics in an organizational development.

Management Accounting

SUBJECT CODE: BCM622A

CREDITS: 4

Course Objective:

To understand the various types of management information and data. To understand the accounting of material labour and overheads. To understand various costing methods. To understand and solve questions of budgeting and its implication. To understand the standard costing concepts in detail and carry out variance analysis. To understand how to measure the performance of the organisation.

Unit 1 (Characteristics of Management Information, Data analysis and Statistical Techniques)

Accounting for Management, Source of Data, Cost Classification, Production and Nonproduction, Presentation of Information, Reports, Tables, Charts, Graphs and Interpretation of Information **Data Analysis & Statistical Techniques** - Sampling Methods. Forecasting Techniques – Equation, Linear Function- High/Low Analysis- Analysis of Cost Data- Historical and Forecasting Data - Index Numbers - Linear Regression-Series Analysis, Summarising and Analysing the Data, Spreadsheet

Unit 2 (Accounting For Costs, Material, Labour & Overheads and various methods of Costing)

Accounting for Material Costs – Ordering, Receiving & Issuing Material ,Methods of Valuing Purchases and Issues (FIFO & Weighted Average Methods Only) – EOQ – Inventory Levels – Accounting for Labour – Direct & Indirect Cost of Labour – Remuneration Methods (Individual & Group) – Labour Turnover – Overtime & Idle Time – Labour Efficiency, Capacity & Volume Ratios Accounting for Overheads – Allocation of Overheads to Production & Nonproduction Departments – Apportion Service Overheads to Production Departments - Production Overhead Absorption Rates – Entries for Accounting of Material, Labour & Overhead Costs. **Absorption, Marginal Costing & Cost Accounting Methods** - Concept of Contribution, Effects of Absorption and Marginal Costing, Reconcile the Profit – Advantages and Disadvantage of Absorption and Marginal Costing, Job and Batch Costing, Process Costing, Service and Operation Costing, Alternative Costing Principles

Unit 3: Budgeting, Capital Budgeting and DCF techniques

Nature, Purpose, Budget Preparation-Cash Budget – Sale Budget-Master Budget – What If Analysis, Flexible Budgets, Budgetary Control and Reporting, Behavioural Aspect of Budgeting. **Capital Budgeting & Discounted Cash Flows** - Capital Investing- Capital and Revenue Expenditure, Compounding and Discounting, NPV, IRR, Annuity and Perpetuity – Cash Flow

Learning Outcome: Identifying Importance of Capital Budgeting & Cash Flows.

Unit 4 (Standard Costing)

Standard Costing Systems, Variance Calculations and Analysis, Sales Price and Volume, Material Price and Usage, Labour Rate and Efficiency, Fixed Overhead, Reconciliation of Budgeting Profit and Actual Profit

Unit 5 (Performance Measurement and its application)

Performance Measurement Overview, Cost Reduction and Volume Enhancement, Monitoring Performance and Reporting. **Application of Performance Measurement** - Calculate and Measure of Financial Measurement, Balance Scorecard, Economy, Efficiency and Effectiveness, Unit Costs, Resource's Utilization, Profitability, Quality of Service

Course Outcomes:

CO1: Discuss the Principles of Cost & Management Accounting.

CO2: Demonstrating to Application of Management Functions.

CO3: Explain the Application of Accounting Methods.

CO4: Describing the role of Decision Making & Control.

CO5: Illustrate techniques to various Business Contexts.

Marketing Management

SUBJECT CODE: BCM621A

CREDITS: 3

Course Objective:

To provide a holistic orientation of emerging marketing trends with the practical skills required to analyse consumer data, create marketing campaigns, develop digital / social media content and make successful marketing decisions and to equip students to be innovative, technically competent and think critically through experiential and student-centric teaching approach.

Unit 1: Fundamentals of Marketing Management

Meaning & Definition of marketing -Role of Marketing -Relationship of Marketing with other functional areas -Market Concepts -Product concept -Selling concept -Marketing concept -Societal marketing concept -Approaches to marketing management -Functions of marketing -Scope of marketing: goods, services, events, organizations, etc. -Emerging trends in marketing.

Unit 2: Marketing Plan

Marketing Environment: Concept -Macro-environmental forces -The changing marketing environment -Analyzing needs and trends in Macro-Environment: Economic Environment, Technical Environment, Political, Environment and Socio-cultural Environment. Introduction to The Marketing Plan -Definition -Nature -Objectives -Structure of The Marketing Plan -The Process of marketing plan -Critical elements of external and internal analysis of Marketing Plan -Implementation of Marketing Plan.

Unit 3: Marketing Mix

Introduction to marketing mix -Marketing mix implementation: short term and long term tactics - Product: meaning, elements, product mix -Product mix strategies -Product line -Product lifecycle Product planning -New product development -Failure of new product -Product branding -Branding strategy and packaging -Pricing: Objectives -Factors influencing pricing policy -Methods of pricing -

Pricing strategy. Physical Distribution: Meaning -Factors affecting channel selection -Types of marketing channels -Promotion: Meaning and significance of promotion - Personal selling & advertising (meaning only).

Unit 4: Buyer behavior

Market Segmentation: Levels and patterns of market segmentation -Bases for segmenting markets - Market segmentation - Targeting - Product Positioning - Types and bases of positioning - Product Differentiation -Meaning of consumer, customer, consumer behaviour and buying motives -Factors influencing buyer

behavior -Factors that influence consumer purchasing decisions -Buying process -Stages of the consumer buying behavior -Business to Business (B2B) buying process -Key factors influencing B2B purchasing decisions -Differences between Consumer goods and Industrial goods

Unit 5: Digital Marketing

Introduction to Digital Marketing -Concept of Digital Marketing -Difference between traditional marketing and digital marketing -Trends and scenarios of the industry -Planning and Creating a Website -Search Engine Optimization (SEO), Search Engine Marketing (SEM), of Social Media Marketing, Blogging, Content Strategy, Email Marketing.

Course outcomes:

CO1: To understand the role and importance of marketing

CO2: Develop a marketing plan to generate better sales and profits

CO3: Formulate the product and price mix based to serve consumer needs.

CO4: Identify the factors influencing consumer behavior and purchase decision

CO5: Outline the digital tools to develop marketing strategies for the new age consumer

Corporate Accounting

SUBJECT CODE: BCM623A

CREDITS: 4

Course Objective:

To understand the advanced concepts that are critical for the finalisation of accounts. Advanced accounting of areas like shares and debentures along with restructuring, amalgamation and group accounting will be few of the topics around which the syllabus will be concentrated around.

Unit 1: Accounting for shares & Debentures

Accounting for Share Capital & Debentures, Issue, forfeiture and reissue of forfeited shares: concept & process of book building; Issue of rights and bonus shares; Buy back of shares; Redemption of preference shares. Issue of Debenture and Its classification. Different terms of issue of debenture. Redemption of debenture.

Unit 2: Profit Prior to Incorporation & Company Financial Statements

Process on incorporation of a company. Difference between incorporation and commencement of a company. Accounting of incomes and expenses during Pre- and Post-Incorporation period. Basis of allocation and apportionment of income and expenses for the Pre and Post-Incorporation period. Meaning - Preparation of Financial Statements of Companies as per Schedule III of the Companies

Act, 2013 (excluding Cash Flow statement) - Treatment of special items: Depreciation, Interest on Debentures, Provision for Tax, Dividends, Interim, Proposed, Corporate Dividend Tax, Unclaimed dividend.

Unit 3: Preparation and Presentation of Cash flow statement & Accounting for Amalgamation

Meaning of Cash flow, Types of Cash flow, Estimation of cash flow using Direct and Indirect methods. (Simple problems only). Amalgamation of Companies, Concepts and accounting treatment as per relevant Indian Accounting Standard (excluding intercompany holdings).

Unit 4: Reconstruction of a company & Preparing group financial statements

Internal reconstruction: concepts and accounting treatment excluding scheme of reconstruction. Accounts of Holding Companies/Parent Companies, Preparation of simple consolidated balance sheet and income statement with one subsidiary company

Unit 5: Valuation of shares & Accounting for banking companies

Concept of Valuation. Need for Valuation. Special Factors affecting valuation of Shares. Methods of Valuation – Net Assets Method, Yield Basis Method, Fair Value Method. Accounts of Banking Companies, Difference between balance sheet of banking and non-banking companies; Prudential norms; Asset structure of a commercial bank; non-performing assets (NPA), Cash Flow Statement Concept of funds, Preparation of cash flow statement as per Indian Accounting Standard (IndAS)

Course Outcomes:

CO1: Illustrate the process of preparation of final accounts of a company as per Schedule III of the Companies Act 2013.

CO2: Develop understanding on the difference between commencement and incorporation of a company and the accounting treatment for transactions during the two phases.

CO3: To enable the students to develop awareness about mergers and acquisition.

CO4: Illustrate the accounting and reporting for group companies.

CO5: Understand and appreciate the need for share valuation and the various methods.

Business Analytics using Excel

Subject Code: BCM 624A

CREDITS: 3

Course Objective:

To comprehend and employ the use of MS Excel application for analysing, visualizing and reporting solutions based on business problems and tasks. This module aims at imparting hands-on training towards formulas and functions as well as how to use which formula for which particular problem scenario. The students will be equipped with the knowledge of various analytical procedures and tools which are available in MS Excel.

Unit 1: Introduction

Spreadsheet Applications, MS Excel Overview, Advantage and Disadvantages, Introduction to Buzzwords – Dashboards, Reports, Data Visualization, Business Intelligence, Decision Support Systems, Business Analytics, Data Visualization, Storytelling and its importance in Business Analytics, Visual Perception.

Unit 2: Working with Data

Excel Workbooks and Worksheets, Worksheet Cells, Selecting and Moving Cells, Excel Add-Ins, Data Formats, Formulas and Functions, Cell References, Range Names, Sorting Data, Querying Data, Importing Data, Data Filtering, Formatting, Highlighting, Aggregating, Operators.

Unit 3: Data Cleaning

Editing Imported Workbook, Delete Unnecessary Columns & Rows, Resizing Columns & Rows, Copying, Moving Worksheet Data, Replacing Data in Fields, Text Functions – Clean, Concatenate, Exact, Find, Fixed, Left, Len, Lower, Mid, Proper, Replace, Rept, Right, Search, Substitute, Text, Trim, Upper, Value Functions, Converting Text Function Formulas to Text, Data Validation.

Unit 4: Excel Data Presentation

Tables, Line and Bar Charts, Scatter Charts, Scatter Charts vs Line Charts, Correlation Analysis, Bullet Graphs, Pie Charts, Doughnut Charts, Surface Charts, Radar Charts, Interactive Charts and Dashboards, Conditional Formatting, Pivot Table, Customizing Pivot Table, Changing Layout, Renaming Fields, Formatting Numbers, Hiding or Showing Data, Sorting, Pivot Charts, Conditional Formatting with Pivot Tables.

Unit 5: Advanced Excel

Counting Items in a Dataset, COUNT, COUNTA, COUNTBLANK, COUNTIFS, PERMUT & COMBIN, Descriptive Statistics, Mean, Mode and Median, AVEDEV, AVERAGE, AVERAGEA, AVERAGEIF & AVERAGEIFS, TRIMMEAN, MEDIAN, MODE, Finding Values, MAX, MAXA, MIN, MINA, LARGE, SMALL, FREQUENCY, PROB, Standard Deviation and Variance, STDEV, STDEV.S, STDEV.A, STDEV.P, VAR.S, VARA, VAR.P, What-If Analysis, Goal Seek & Solver.

Course outcomes:

CO 1: Describe and demonstrate the importance of MS Excel and its functionalities.

CO 2: Identify, interpret and explain the fundamentals concepts pertaining to working with data in MS Excel.

CO 3: Employ the use of various text functions and techniques for pre-processing and cleaning the data.

CO 4: Create and demonstrate the working of interactive dashboards and charts using MS Excel application.

CO 5: Classify different techniques and functions for descriptive statistics and advanced-excel.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

Course Outcome	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M		M				M
CO2		M				M	
CO3	M		H				
CO4			H	M		M	
CO5		M					M

H = Highly Related; M = Medium; L = Low

References:

1. David Whigham, *Business Data Analysis using Excel*, Oxford.
2. Manisha Nigam, *Advanced Analytics with Excel*, BPB.
3. Alfred P. Rovai, *Statistical Fundamentals Using MS Excel*, Amazon.
4. Danielle Stein Fairhurst, *Using Excel for Business Analysis*, Wiley.
5. Gordon S. Linoff, *Data Analysis using SQL and Excel*, Wiley.
6. Dr. Renjini D., *Data Analysis for Business Decisions using Excel*, Bharti.

Professional Skills
Subject code: DEN002A
Credits: 3

Course Objectives

1. To enhance Professional competence in reading, writing, listening and speaking.
2. Switch the approach from providing information about the language to use the language.

3. Minimize the Grammar Translation Method of ELT while trying to replace it with Direct Method.
4. Introduce Communicative Method of ELT and focusing the teaching pedagogy on the student-centred learning rather than on the teacher-centred learning.
5. Ability to master three major forms of communications which are vital in academic and professional settings namely professional presentations, interviews and group communications respectively.
6. Providing a deep insight into the techniques for delivering effective presentations, winning job interviews, and actively participating in various forms of group communication.

Course Outcomes (CO):

At the end of this course students will have:

CO1: Ability to design a language component or process to meet desired need within realistic, Constraints such as economic, environmental, social, political, ethical, scenario

CO2: Ability to analyze the usage of English words in professional scenario.

CO3: An understanding of technical and academic articles' comprehension.

CO4: The ability to present oneself at multinational levels as per the demand of the corporate culture

Syllabus: Theory

UNIT 1 Professional Grooming and Professional Culture:

Basics of corporate culture, Dressing sense-personal hygiene, Cultural adaptability, Body language components: undesirable and desirable body language, Team-ship, Leadership, Stress and Conflict management

UNIT 2 Advanced Grammar: Common errors related to prepositions, articles, models , Conditionals, Determiners etc, Punctuation, Proof-reading and Editing of Documents

UNIT 3 Composition: Memo, Notice, Circular, Book Review, Research Article, Reports

UNIT 4 Vocabulary Building: Words often misspelt, One Word Substitution, Phrasal Verbs, Idioms

UNIT 5 Reading Comprehension: Reading different types of documents including Passages, Reports, Technical Essays, Speeches, Research Articles, Newspaper articles, Interviews etc- Skimming and Scanning-Inference and Deduction

Syllabus: Lab

UNIT 1 Professional Culture:

Role plays and Activities on Dressing sense-personal hygiene, Cultural adaptability, Body language components: undesirable and desirable body language, Team-ship, Leadership, Stress and Conflict management

UNIT 2 Advanced Grammar: Exercise Sessions for Common errors related to prepositions, articles, models , Conditionals, Determiners etc, Punctuation, Proof-reading and Editing of Documents

UNIT 3 Composition: Memo, Notice, Circular, Book Review, Research Article, Reports – Giving Assignments based on practical applications, Practice sessions on different topics

UNIT 4 Vocabulary Building: Words often misspelt, One Word Substitution, Phrasal Verbs, Idioms- Activities related to the appropriate use of words

UNIT 5 Reading Comprehension: Practice Reading Unseen Paragraphs- Finding Suitable title, Summarizing, Analyzing, Finding new words etc

Methodology for Evaluation

1. Internal Assessment (Theory)
 - a) Home Assignments: One from each Unit : 15 Marks
 - b) In Semester Tests (Minimum two) : 30 Marks
 - c) Attendance : 05 Marks
2. Term End (Theory) : 50 Marks
3. Internal Assessment (Lab)
 - (a) Daily Performance in the Lab : 50 Marks
4. Term End (Lab) : 50 Marks

Suggested Readings:

1. FelixaEskey. Tech Talk, University of Michigan. 2005
2. Michael Swan. Practical English Usage, Oxford University Press. 2005
3. Anderson, Paul. Technical Communication: A Reader Centered Approach, V Edition, Hercourt, 2003.
4. Thampi, G. Balamohan. Meeting the World: Writings on Contemporary Issues. Pearson, 2013.

5. Lynch, Tony. Study Listening. New Delhi: CUP, 2008.
6. Kenneth, Anderson, Tony Lynch, Joan Mac Lean. Study Speaking. New Delhi: CUP, 2008.
7. Marks, Jonathan. English Pronunciation in Use. New Delhi: CUP, 2007.
8. Syamala, V. Effective English Communication For You (Functional Grammar, Oral and Written Communication): Emerald, 2002.

Cultural Education II
Subject Code: DIN002A
Credits: 2

Objectives

1. To make the students feel gratitude towards the rich religious and cultural heritage of India.
2. To understand the role of great personalities and movements in the progress of India.

Course Outcomes (CO):

At the end of this course students will have:

CO1: Ability to acknowledge and appreciate the richness of Indian Culture

CO2: Ability to represent the culture ethics in real life

UNIT-I Holy Scriptures-II

1. Bhagavad Gita and Life Management
2. Highlights of Indian Scriptures - Major Incidents and terms from various religious scriptures including Ramayana, Mahabharata, Guru Granth Saheb, Bible, Quran, Jain Scriptures, Bodh Scriptures
3. Historicity of Ramayana and Mahabharata

UNIT-II Society and Culture-II

4. Indian Society: Its Strengths and Weaknesses
5. Health and Lifestyle related issues
6. Conservation of cultural heritage

UNIT-III India in Progress-II

7. Role & Position of Women in Indian Society- Rituals like Sati, Dakin, Kanyavadh, Pardah, Devdasi, Child Marriage, Measures of Women Empowerment including Education, Constitutional and other Rights
8. Indian Models of Economy, Business and Management

UNIT-IV Great Indian Personalities-II

9. Life and works of the Great People of Modern India- Raja Ram Mohan Roy, Swami Vivekanand, Madan Mohan Malviya, Ishwarchand VidyaSagar, JyotibaPhule, HomiBhabha, B.R. Ambedkar, Mahatma Gandhi, Chandra Shekhar Aazad, Abdul Hamid, Badshah Khan, Bhagat Singh, Ashfaqullah, Vir Sawarkar, Vir Banda Bahadur, Vir Haqiqat Rai, Subhash Chandra Bose, Mother Teresa, Jagdish Chandra Basu, JRD Tata, Ratan Tata, Dada Saheb Phalke, Major Dhayan Chand, A P J Abdul Kalam, Kailash Satyarthi, Aruna Roy, Mahasweta Devi, Udaya Kumar, Narayan Murthy, Azim Premji

*Each student shall write a detailed Report/ Critique on one topic from section -A to C and one Great Personality from Section- D leading to publication of Newspaper/ Magazine article or a review paper in a Research Journal. In addition to s/he will be required to make a Power Point Presentation on the learning and face Viva-voce by a committee of teachers.

Suggested Reading:

1. Glory of Indian Culture (English) Paperback by Giriraj Shah
2. Historicity of Vedic and Ramayan Eras: Scientific Evidences from the Depths of Oceans to the Heights of Skies by Saroj Bala , Kulbhushan Mishra

References

<https://knowindia.gov.in/culture-and-heritage/lifestyle-values-and-beliefs.php>

ENVIRONMENTAL STUDIES
SUBJECT CODE: DCH001A
CREDITS: 4

Objectives:

Environmental studies deals with every issue that affects an organism. It is essentially a multidisciplinary approach that brings about an appreciation of our natural world and human impacts on its integrity. It is an applied science as it seeks practical answers to making human civilization

sustainable on the earth's finite resources. Its components include biology, geology, chemistry, physics, engineering, sociology, health, anthropology, economics, statistics, computers and philosophy. As we look around at the area in which we live, we see that our surroundings were originally a natural landscape such as a forest, a river, a mountain, a desert, or a combination of these elements. Most of us live in landscapes that have been heavily modified by human beings, in villages, towns or cities. But even those of us who live in cities get our food supply from surrounding villages and these in turn are dependent on natural landscapes such as forests, grasslands, rivers, seashores, for resources such as water for agriculture, fuel wood, fodder, and fish.

The basis objective of this course is to provide basic understanding to the students with the nature and the environment.

UNIT I

The **Multidisciplinary** nature of environmental studies Definition; Scope and importance, Need for public awareness.

UNIT II

Natural Resources: Renewable and non-renewable resources: Natural resources and associated problems.

a) Forest resources: Use and Over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests 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 overgrazing, 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

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 ecosystem:

a. Forest ecosystem

b. Grassland ecosystem

c. Desert ecosystem

d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

UNIT IV

Biodiversity and its Conservation

- Introduction-Definition: genetic, species and ecosystem diversity.
- Bio-geographical 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, Causes, effects and control measures of: -

- a. Air pollution
- b. Water pollution
- c. Soil pollution
- d. Marine pollution
- e. Noise pollution
- f. Thermal pollution
- g. 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

UNIT-VI: Social Issues and the Environment

- 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. Case studies.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- 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-7:

Human Population and the Environment - Population growth, variation among nations. Population explosion-Family welfare Programme. Environment and human health. Human Rights. Value Education. HIV/AIDS. Women and Child Welfare.

- Role of information Technology in Environment and human health.
- Case Studies.

UNIT-8: Field Work (Practical).

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

Course outcomes(CO)

- I CO1: It deals with every issue that affects the organization.
- II CO 2: To understand the multidisplinary nature of environmental studies.
- III CO3:To understand about the renewable and non renewable resources.
- IV CO4: Knowing about the concept of the ecosystem.
- V CO5: To know impact of population on environment.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

Course Outcome	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1		H			M	M	
CO2			H		M	M	
CO3			M		H	L	L

CO4		M		H		M	L
CO5			L		M	L	

H = Highly Related; M = Medium L = Low

Reference Books:

1. Agarwal K.C. 2001 Environmental Biology, Nidi publ. Ltd. Bikaner.
2. Bharucha Erach, The Biodiversity of India, Map in Publishing Pvt. Ltd. Ahemdabad-380013, India, E-mail: Mapincenet, net.
3. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc.480p.
4. Clark R.S., Marine pollution, Clarendon Press Oxford.
5. Cunningham, W.P.Cooper, T.H.Gorhani, E & Hepworth, M.T. 2001, Environmental & Encyclopedia, Jaico Publ. House, Mumbai, 1196p
6. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
7. Down to Earth, Centre for Science and Environment
8. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev.,Environment& Security. Stockholm Env. Institute. Oxford Univ. Press, 473p
9. Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay .
10. Heywood, V.H & Watson, R. T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press1140p
11. Jadhav, H &Bhosale, V.M.1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p
12. Mckinney, M.L. &Schoeb, R.M. 1996. Environmental Science systems & solutions, Web enhanced edition 639p.
13. Mhaskar A.K. Matter Hazardous. Techno-Science Publications.
14. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co.
15. Odium, E.P. 1971. Fundamentals of Ecology, W.B.Saunders Co. USA. 574p
16. Rao M.N. &Datta, A.K. 1987. Waste Water Treatment. Oxford & IBH Publ .Co. Pvt. Ltd. 345p.
17. Sharma B.K., 2001. Environmental Chemistry Goel Publ. House, Meerut.
18. Townsend C.,Harper J, and MichealBegon, Essentials of Ecology, Blackwell Science
19. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and standards, Vol I an II, Enviro Media
20. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science Publications
21. Wagner K.D., 1998. Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p

Semester III

THIRD SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 625A	Banking & Financial Services	3	1	-	3	F
BCM 626A	E-Business & Cyber Laws	3	1	-	3	ID
BCM 627A	Research Methodology	3	1	-	4	F
BCM 628A	Programming For Business Analytics	2		4	4	S
BCM 629A	Business Statistics With R	3		2	4	S
DBA628A	Human Resource Development (Open Elective)	3	-	-	3	G
DEN003A	Life Skills - 1 (Personality Development)	2	-	-	2	G
DIN003A	Value Education – 1	1	1	-	1	G
	TOTAL	20	4	6	24	

Banking & Financial Services

SUBJECT CODE: BCM625A

CREDITS: 3

Course Objective:

The Banking & Financial Services module introduces the learners to the world of financial services and facilitates an understanding of the various financial services. The learners will be able to apply financial concepts, theories, and tools and will be in a position to evaluate the environment related to financial services. This module provides insights on the concepts of merchant banking, issue of securities, leasing, factoring, credit rating, etc. Additionally, it equips learners with the knowledge of the financial markets such as money markets and capital markets

Module 1: Indian Banking System

Introduction to banking: Nature of the Indian banking system, Banking concepts: Retail Banking, Corporate banking, wholesale banking, banking system in India, Relationship between banker and customer, types of Deposit account, Banking Sector reforms.

Module 2: Electronic Banking

Electronic Banking: Meaning and benefits of E Banking, Innovations in banking due to technology, Automated Teller Machines, Telebanking, Internet Banking, Mobile Banking, Electronic Funds Transfer, ECS, NEFT, RTGS, UPI, Risk Management of E-Banking.

Module 3: Negotiable Instruments and Customer Relationship

Meaning and characteristics of Negotiable instruments: Cheques, Bills of Exchange and Promissory notes. Legal Framework of Banker-Customer Relationship, Bankers Disclosure, Termination of relationship, Bankers Right of Lien and set-off

Module 4: Financial Service management

Introduction to financial services, financial services, concept, objectives, Financial services market, concept and constituents, Financial services sector problems, Financial services environment, forces and players in financial markets. Financial Services: Leasing, Merchant banking, Hire purchase and installment system, Consumer finance, Credit cards, Credit Mutual Fund, Factoring, Securitization of debts, Treasury management, Depositories and Pledge

Module 5: Money market and Stock exchange

Money market and stock exchange, Money market –characteristics and functions, money market instruments: call money, Treasury bills, certificates of deposits, commercial bills, trade bills, Indian capital market, constituents, New financial institutions and instruments, Investor protection. Stock exchange: functions, services, features and role. Stock exchange traders, Regulations of stock exchanges, Depository and SEBI functions and working.

Course Outcomes:

CO1: Acquaint the students with the knowledge of various banking concepts specifically, merchant banking and public issue management

CO2: Understand the fundamentals of financial services and financial markets.

CO3: Obtain an overview of money markets and stock exchange functioning.

CO4: Appreciate the relevance of leasing, factoring, and securitization to business

CO5: Understand the fundamentals of venture capital, credit rating, and pension fund.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

<i>Course Outcome</i>	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1							
CO2							
CO3							
CO4							
CO5							

H = Highly Related; M = Medium L = Low

Textbooks:

1. Desai Vasant Indian Banking –Nature and problems, Sultan Chand and Sons.
2. Khan, M.Y., Financial Services, Tata McGraw Hill, New Delhi.

Reference Books:

1. Bhole, L.M., Financial Institutions and Markets: Structure, Growth and Innovations, Tata McGraw Hill., New Delhi
2. Siddaiah, T., Financial Services, Pearson Education, New Delhi

E-Business & Cyber Laws

SUBJECT CODE: BCM626A

CREDITS: 3

Course Objective:

The objective of the course is to equip the students with the emerging trends in business. It further introduces the students with the impact of information technology on various aspects of business and also helps them familiarize with cyber world and cyber regulations

Module 1: E-Business

E-business vs. E-commerce, transformation of business structure, Trends: E-Business Models, E-business Design: Knowledge building, capacity evaluation, design steps.

Module 2: E-Marketing

Traditional Marketing, Identifying Web presence Goals – Browsing Behaviour Model, Online Marketing, E-advertising – Internet Marketing Trends – E branding– E marketing strategies. Concept and Definition of E-Retailing - Different Models of E-Retailing, Model for Web based Information System in E-Retailing; Key Technologies of B2C Model in E-Retailing – EPOS System, Functions of an EPOS system

Module 3: E-Business Technologies

Customer relationship management (CRM) - Organizing around the customer; CRM design and infrastructure - CRM Trends; Selling-chain management - Need for selling-chain management - Order acquisition process – Trends, Enterprise resource planning (ERP) – Integration of information technology systems - Forces influencing ERP – Implementation strategies - ERP trends; Supply chain Management - Internet-enabled SCM - Supply-chain planning and execution - SCM issues and trends; E-procurement - Transformation to web based technology - Cost savings and return of investment - Buyer focus - Seller focus - Trends.

Module 4: Cyber World

Cyber space – cybercrimes – types: cyber stalking, forgery and fraud, crime related to IPR (copyright issues, trademark issues, software patenting issues), cyber terrorism, & computer vandalism.

Module 5: Cyber Regulations

Cyber Law, scope of cyber laws - e-commerce, online contracts, IPRs, E-taxation, e-governance and cybercrimes, issues relating to investigation, cyber forensic, relevant provisions under IT Act 2000

Course Outcomes:

CO1: Understand the concepts and workings of E-Business

CO2: Understand the use and application of E-Marketing in E-Business

CO3: Understand different E-Technologies, their application, and drawbacks

CO4: Understand and learn about the Cyber World – opportunities and threats

CO5: Learn about various Cyber regulations and related laws application to E-business environments.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

<i>Course Outcome</i>	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1							
CO2							
CO3							
CO4							
CO5							

H = Highly Related; M = Medium L = Low

Textbooks:

1. E-business, Dr. Ravi Kalakota, Pearson Education Asia
2. E-Business and Commerce, Brahm Canzer, Dreamtech press, New Delhi
3. E-Business essentials, Rajat Chatterjee, Global India Publication, New Delhi

Reference Books:

1. E-Business essentials, Matt Haig, Kojan Page India Ltd
2. IT Act 2000, IT Amendment Bill 2006, IT Amendment Bill 2008

3. Ajit Prakashan's Information Technology Act, 2000 (Cyber Law) (IT Act 2000: Bare Acts with Short Notes)

Research Methodology
SUBJECT CODE: BCM627A
CREDITS: 4

Course Objective:

This module enables learners to develop the basic principles of research methods. The learners focus on how to do research, with an emphasis on student-centered activities and problem solving. Learners will develop insights the key concepts as the scientific method; operationalizing constructs; independent and dependent variables, data types and ways of measurement, confounding variables experimental and non-experimental design questionnaire construction; developing and testing hypotheses; descriptive statistics and describing data graphically; and the ethics of research.

Module 1: Research Formulation and Design

Motivation and objectives-Research methods and methodology. Types of research: Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical, concept of applied and basic research process, criteria of good research. Defining and formulating the research problem, selecting the problem, necessity of defining the problem, importance of literature review in defining a problem, literature review-primary and secondary sources, reviews, monograph, patents, research databases, web as a source, searching the web, critical literature review, identifying gap areas from literature and research database, development of working hypothesis.

Module 2: Data Collection and Analysis

Accepts of method validation, observation and collection of data, methods of data collection, sampling methods, data processing and analysis strategies and tools,data analysis with statically package (Sigma STAT,SPSS for student t-test, ANOVA, etc.), hypothesis testing.

Module 3: Statistical Softwares

Computer and its role in research, Use of statistical software SPSS, GRETL etc. in research. Introduction to evolutionary algorithms - Fundamentals of Genetic algorithms, Simulated Annealing, Neural Network based optimization, Optimization of fuzzy systems.

Module 4: Research Ethics and Scholarly Publishing

Ethics-ethical issues, ethical committees (human & animal); IPR- intellectual property rights and patent law, commercialization, copyright, royalty, trade related aspects of intellectual property rights (TRIPS); scholarly publishing- IMRAD concept and design of research paper, citation and acknowledgement, plagiarism, reproducibility and accountability.

Module 5: Interpretation and Report Writing

Meaning of Interpretation, Technique of Interpretation, Precaution in Interpretation, Significance of Report Writing, Different Steps in Writing Report, Layout of the Research Report, Types of Reports, Oral Presentation, Mechanics of writing Research Report Precautions for writing Research Reports, Conclusions.

Course Outcomes:

CO1: Understand and apply the fundamental principles of the research process as they relate to answering research questions.

CO2: Describe the appropriate use of basic research techniques and research design as they apply to answering different questions.

CO3: Explain critically analyses information particularly in relation to identifying causal and spurious relations in research claims.

CO4: Identify appropriate techniques underlying different research approaches

CO5: Understand and effectively interpret and communicate research findings

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

<i>Course Outcome</i>	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1							
CO2							
CO3							
CO4							
CO5							

H = Highly Related; M = Medium L = Low

Textbooks:

1. Kothari, C.R., 2019. Research Methodology: Methods and Techniques. New Age International.
2. Sinha, S.C. and Dhiman, A.K., 2019. Research Methodology, Ess Publications. 2 volumes.

Reference Books:

1. Trochim, W.M.K., 2005. Research Methods: the concise knowledge base, Atomic Dog Publishing. 270p.
2. Wadehra, B.L. 2000. Law relating to patents, trademarks, copyright designs and geographical indications. Universal Law Publishing.

Programming for Business Analytics

SUBJECT CODE: BCM628A

CREDITS: 4

Course Objective:

This module introduces Students to various programming languages in the field of Analytics like SQL, R, SAS, Python and forms the foundation for further analysis of Datasets. Students will learn the basics of these programming languages and learn data manipulation techniques.

Module 1: Introduction: Database Management Systems

Definition, Characteristics of DBMS, Architecture & Security, Types of Data Models, Concepts and constraints of RDBMS, Introduction to Structured Query Language, MySQL Installer, download sample Database, Loading Sample Database.

Module 2: Data definition and Manipulation

SQL Process, SQL Commands – DDL, DML, DCL, DQL, SQL Constraints, Data Integrity, Data Types, SQL Operators, Expressions, Querying Database, Retrieving result sets, Sub Queries, Syntax for various Clauses of SQL, Functions and Joins, Indexes, Views, Transactions.

Module 3: Basics of SAS

Introduction to SAS, Installation of SAS university Edition, prerequisites for data analysis using SAS, SAS Architecture, Data Types, Formats and Informats, SAS coding- Data step and proc step, Libraries, Importing external data, Reading and Manipulating Data, Functions, Data Transformations, Conditional Statements.

Module 4: Python: Basics of Python

Installation of Anaconda Navigator, Data types – string, tuples, set, lists, dictionary, Arrays. Spyder, Importing and Exporting Files, Data Manipulation, Descriptive Statistics and Documentation with Jupiter.

Module 5: R Programming

Basics of R, Installation of R studio, Vectors, Matrices, Data types, Importing files, Writing files, Merging Files, Data Manipulation, Creation and Deletion of New Variables, Sorting of Data, Functions, Graphical Presentation and Descriptive Statistics.

Course outcomes:

CO 1: Learn Data Models, Data Independence and Data Views and build custom Entity Relationship Diagrams based on different problem sets.

CO 2: Employ the use of Structured Query Language to perform DBMS related tasks and implement relational data query.

CO 3: Perform several tasks with regards to Data Analytics, Visualization, Data Manipulation using SAS programming.

CO 4: Employ and use Python packages and functions to deploy analytical systems/programs.

CO 5: Learn R programming and understand its effectiveness with respect to Data Analytics.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

Course Outcome	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M						M
CO2		M			H	M	
CO3	H		H				
CO4	M		M	M	M		
CO5			M		H		L

H = Highly Related; M = Medium L = Low

Textbooks:

1. DuBois. (2014). *MySQL cookbook*. O' Reilly

2. Delwiche & Slaughter. (2012). *SAS: The little SAS Book*. SAS Institute

Reference Books:

1. Hemedinger & McDaniel. (2010). *SAS for dummies*. Wiley
2. McKinney. (2017). *Python for Data Analysis*. O' Reilly
3. Grolemund. (2014). *R: Hands-on Programming*; Garrett, O' Reilly

Business Statistics with R
SUBJECT CODE: BCM629A

CREDITS:4

Course Objective:

The objective of this module is to make students exercise the fundamentals of statistical analysis in an R environment. They would be able to analyze data for the purpose of exploration using descriptive and inferential statistics. Students will understand probability and sampling distributions and learn the creative application of linear regression in a multivariate context for predictive purposes.

Module 1: Introduction to R Programming

R and R Studio, Logical Arguments, Missing Values, Characters, Factors and Numeric, Help in R, Vector to Matrix, Matrix Access, Data Frames, Data Frame Access, Basic Data Manipulation Techniques, Usage of various apply functions – apply, lapply, sapply and tapply, Outliers treatment.

Module 2: Descriptive Statistics

Types of Data, Nominal, Ordinal, Scale and Ratio, Measures of Central Tendency, Mean, Mode and Median, Bar Chart, Pie Chart and Box Plot, Measures of Variability, Range, Inter-Quartile-Range, Standard Deviation, Skewness and Kurtosis, Histogram, Stem and Leaf Diagram, Standard Error of Mean and Confidence Intervals.

Module 3: Probability, Probability & Sampling Distribution

Experiment, Sample Space and Events, Classical Probability, General Rules Of Addition, Conditional Probability, General Rules For Multiplication, Independent Events, Bayes' Theorem, Discrete Probability Distributions: Binomial, Poisson, Continuous Probability Distribution, Normal Distribution & t-distribution, Sampling Distribution and Central Limit Theorem.

Module 4: Statistical Inference and Hypothesis Testing

Population and Sample, Null and Alternate Hypothesis, Level of Significance, Type I and Type II Errors, One Sample t Test, Confidence Intervals, One Sample Proportion Test, Paired Sample t Test, Independent Samples t Test, Two Sample Proportion Tests, One Way Analysis of Variance and Chi Square Test.

Module 5: Correlation and Regression

Analysis of Relationship, Positive and Negative Correlation, Perfect Correlation, Correlation Matrix, Scatter Plots, Simple Linear Regression, R Square, Adjusted R Square, Testing of Slope, Standard Error of Estimate, Overall Model Fitness, Assumptions of Linear Regression, Multiple Regression, Coefficients of Partial Determination, Durbin Watson Statistics, Variance Inflation Factor.

Course outcomes:

CO 1: Install, Code and Use R Programming Language in R Studio IDE to perform basic tasks on Vectors, Matrices and Data frames.

CO 2: Describe key terminologies, concepts and techniques employed in Statistical Analysis.

CO 3: Define, Calculate, Implement Probability and Probability Distributions to solve a wide variety of problems.

CO 4: Conduct and Interpret a variety of Hypothesis Tests to aid Decision Making.

CO 5: Understand, Analyse, Interpret Correlation and Regression to analyse the underlying relationships between different variables.

**MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM
OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:**

<i>Course Outcome</i>	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	H				M		
CO2		M		L		M	
CO3	M		M	M			
CO4				H	M		
CO5		M			M		H

H = Highly Related; M = Medium L = Low

Textbooks:

1. Ken Black, 2013, *Business Statistics*, New Delhi, Wiley.
2. Lee, Cheng. et al., 2013, *Statistics for Business and Financial Economics*, New York: Heidelberg Dordrecht
3. Anderson, David R., Thomas A. Williams and Dennis J. Sweeney, 2012, *Statistics for Business and Economics*, New Delhi: South Western.

Reference Books:

1. Waller, Derek, 2008, *Statistics for Business*, London: BH Publications.
2. Levin, Richard I. and David S. Rubin, 1994, *Statistics for Management*, New Delhi: Prentice Hall

Life Skills 1 (Personality Development)

SUBJECT CODE: DEN003A

CREDITS: 2

THEORY

UNIT 1

Basics of Organizational Communication: Communication: Meaning, Elements, Process, Types, Flows of Communication and Barriers to communication, basics of professional communication and professional ethics including Time-management, Respect for deadlines and corporate culture

UNIT 2

Basic Writing Skills: Parts of Speech, Elements of Sentences, Sentence types based on meaning and structure, Tenses, Voice, Narration

UNIT 3

Composition:, Basics of Letter Writing, Email Writing, Précis Writing, Essay Writing,

UNIT 4

Vocabulary Building: Word Formation from one word form to another, Origin of Words, Affixes, Synonyms, Antonyms

UNIT 5

Professional and Technical Communication : Basics of Drafting a CV/Resume, Basics of Telephonic Interview and Online Interview, Basics of PPT presentation

LAB

UNIT 1

Basics of Organizational Communication: Role Plays and presentations related to different corporate related matters- How to greet, how to deny politely, how to handle different types of problems related to the types of communication, how to avoid grapevine and use it in a positive manner, how to keep positive mindset during work pressure, Activities to teach Timemanagement, Following Deadlines etc

UNIT 2

Write Dialogue from the different contexts of corporate culture: Employee and Employer, Customer and Service Provider, Customer and Product Review, How to react on Day to day corporate interactions- Memo, Notice, Email, Circular etc

UNIT 3

Composition:, Letter Writing, Email Writing, Précis Writing, Essay Writing, Practice sessions by using Ms Word- Following the process of DraftingRedrafting, Proof Reading, Editing etc

UNIT 4

Vocabulary Building: Word Formation from one word form to another, Origin of Words, Affixes, Synonyms, Antonyms- Using video clips and comprehension passages to find out the difference between words, similarity between words, origin of words, neologism concepts etc

UNIT 5

Professional and Technical Communication : Drafting a CV/Resume, Practice Sessions on Telephonic Interview and Online Interview, Presenting projects, proposals etc through PPT Making

Value Education 1

SUBJECT CODE: DIN003A

CREDITS: 1

Lessons from the Ramayana

Introduction to Ramayana, the first Epic in the world – Influence of Ramayana on Indian values and culture – Storyline of Ramayana – Study of leading characters in Ramayana – Influence of Ramayana outside India – Relevance of Ramayana for modern times.

Lessons from the Mahabharata

Introduction to Mahabharata, the largest Epic in the world – Influence of Mahabharata on Indian values and culture – Storyline of Mahabharata – Study of leading characters in Mahabharata – Kurukshetra War and its significance - Relevance of Mahabharata for modern times.

Lessons from the Upanishads

Introduction to the Upanishads: Sruti versus Smriti - Overview of the four Vedas and the ten Principal Upanishads - The central problems of the Upanishads – The Upanishads and Indian Culture – Relevance of Upanishads for modern times – A few Upanishad Personalities: Nachiketas, Satyakama Jabala, Aruni, Shvetaketu.

Message of the Bhagavad Gita

Introduction to Bhagavad Gita – Brief storyline of Mahabharata - Context of Kurukshetra War – The anguish of Arjuna – Counsel by Sri. Krishna – Key teachings of the Bhagavad Gita – Karma Yoga, Jnana Yoga and Bhakti Yoga - Theory of Karma and Reincarnation – Concept of Dharma – Concept of Avatar - Relevance of Mahabharata for modern times.

Life and Message of Swami Vivekananda

Brief Sketch of Swami Vivekananda's Life – Meeting with Guru – Disciplining of Narendra - Travel across India - Inspiring Life incidents – Address at the Parliament of Religions – Travel in United States and Europe – Return and reception India – Message from Swamiji's life.

Life and Teachings of Spiritual Masters

India Sri Rama, Sri Krishna, Sri Buddha, Adi Shankaracharya, Sri Ramakrishna Paramahansa, Swami Vivekananda.

Insights into Indian Arts and Literature

The aim of this course is to present the rich literature and culture of Ancient India and help students appreciate their deep influence on Indian Life - Vedic culture, primary source of Indian Culture – Brief introduction and appreciation of a few of the art forms of India - Arts, Music, Dance, Theatre.

Human Resource Development (Open Elective)

SUBJECT CODE: DBA628A

CREDITS: 3

Module 1: Human Resource Development (HRD) -Macro Perspective

Understand HRD Concept, Origin and Need of HRD, HRD as a Total System, Approaches to HRD; Human Development and HRD; HRD at Macro and Micro Climate

Module 2: HRD–Micro Perspective

Understand areas of HRD, HRD Interventions Performance Appraisal, Potential Appraisal, Feedback and Performance Coaching, Training, Career Planning, OD or Systems Development, Rewards, Employee Welfare and Quality of Work Life and Human Resource Information; Staffing for HRD: Roles of HR Developer; Physical and Financial Resources for HRD; HR Accounting; HRD Audit, Strategic HRD

Module 3: Instructional Technology for HRD

Learning and HRD; Models and Curriculum; Principles of Learning; Group and Individual Learning; Transactional Analysis; Assessment Centre; Behaviour Modelling and Self Directed Learning; Evaluating the HRD

Module 4: Human Resource Training and Development

Concept and Importance of training and development; Assessing Training Needs; Designing and Evaluating T & D Programmes; Role, Responsibilities and challenges to Training Managers

Module 5: Training Methods

Training within Industry (TWI): On the Job & Off the Job Training; Management Development: Lecture Method; Role Play; In-basket Exercise; Simulation; Vestibule Training; Management Games; Case Study; Programmed Instruction; Team Development; Sensitivity Training; Globalization challenges and Strategies of Training Program, Review on T&D Programmes in India

Semester IV

FOURTH SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 630A	Entrepreneurship	3	1	-	3	F
BCM 631A	Business Variables Analytics	2	1	2	4	S
BCM 632A	Audit And Assurance	3	1	-	4	C
BCM 633A	Financial Predictive Analytics	3		2	4	S
BCM 634A	E-Accounting	3	1	-	3	C
BCM 635A	Logistics And Supply Chain Management	3	1	-	3	ID
***	Open Elective	3	-	-	3	G
DEN004A	Life Skills - 2 (Aptitude)	2	-	-	2	G
DIN004A	Value Education – 2	1	1	-	1	G
	TOTAL	23	6	4	27	

Entrepreneurship

SUBJECT CODE: BCM 630A

CREDITS: 3

Course Objective:

The objective of the course is to expose the students to the entrepreneurial cultural and industrial growth and understand the scope of an entrepreneurship and to know the importance of business plan and major elements of business plan. Learners will develop insights to facilitate the development of an entrepreneurial mind-set and equip them with necessary cutting-edge knowledge and skills vital for generating value in a knowledge-based economy.

Module 1: Introduction to Entrepreneurship

Understand the meaning and concept of Entrepreneurship, the history and evolution of entrepreneurship, qualities and behavioral traits of successful entrepreneurs, role of entrepreneurship in economic development, myths about entrepreneurs and agencies in entrepreneurship management

Module 2: Types of Entrepreneurs and Stages in Entrepreneurship development

Types of entrepreneurs based on factors such as type of business, use of technology, motivation, growth, stages; sensing Market Opportunities, identify market gaps, Idea vs Opportunity Matching, idea testing with potential customers

Module 3: Entrepreneurial Motivation

Understand Motivation, Maslow’s theory, Herzberg’s theory, McGregor's Theory, McClelland’s Need – Achievement Theory, Culture & Society, Values / Ethics, Risk taking behavior

Module 4: Environment Analysis and Business Plans

Understand PEST to PESTEL to STEEPLE, Unique Selling Proposition (USP), Competition Analysis, Porter’s five forces – competitor strategies, Components of Business Plan, Market research and feasibility report, Marketing Mix, Types of Organisations (sole proprietorship, partnership, corporations, Limited Liability company)

Module 5: Organizations that Support Entrepreneurship

Industrial Parks, Special Economic Zone, MSME Act, Role of SME in India, Government support to SME, Sickness in SMEs – causes / remedial measure, exemptions from Income Tax, financial assistance to MSME, modernisation assistance to small scale unit, the Small Industries Development Bank of India (SIDBI), the State Small Industries Development Corporation (SSIDC), Export oriented units, Khadi and Village Industries Commission (KVIC)

Course Outcomes:

CO1: Critically evaluate processes and organizational forms involved in co-creating value to solve complex challenges in collaboration with different types of entrepreneurs.

CO2: Understand theories of entrepreneurship, business development and entrepreneurship development

CO3: Articulate the characteristics required to become successful entrepreneurs. Identify and appraise strategies for growth of new ventures.

CO4: Create alternative Business Plans, appraise them, and conclude on the most suitable Business Plan. Also prioritize the next best alternatives.

CO5: Develop an entrepreneurial mind-set by understanding and applying key debates in the areas of entrepreneurial opportunity, motivation, marketing and finance

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

<i>Course Outcome</i>	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1							
CO2							

CO3							
CO4							
CO5							

H = Highly Related; M = Medium L = Low

Textbooks:

1. Taxmann's Entrepreneurship Development by CA (Dr.) Abha Mathur
2. Entrepreneurship Development by Monica Loss & F.L. Bascunan

Reference Books:

1. Knowledge Management: Enabling Business Growth by Ganesh Natarajan and Sandhya Shekhar
2. Supply Chain Management: Strategy, Planning, and Operations by Sunil Chopra and Peter Meindl
Secrets of Customer Relationship Management by James G. Barnes

Business Variables Analytics
SUBJECT CODE: BCM 631A

CREDITS: 4

Course Objective:

This course will enable students to exercise Multivariate Techniques in an R environment in different Business Cases. They will know the different techniques covered under the scope of Multivariate Analysis and will be able to apply and build select Predictive Models in the context of Binary Classification and Time Series.

Module 1: Overview of Multivariate Statistics)

Nature of Multivariate Analysis, Validity and Reliability, Types of Multivariate Techniques, PCA and Factor Analysis, Multiple Regression, Logistic Regression, Canonical Correlation, Conjoint Analysis, Cluster Analysis, Multi-Dimensional Scaling, Correspondence Analysis, Structural Equation Modeling, Multivariate Model Building.

Module 2: Data Cleaning and Multivariate Techniques

Graphical Examination of Data, Convert Un-Tidy Data into Tidy Data. Missing Data, Imputation of Missing Data by Central Tendency and kNN Method. Outliers, Winsorization of Outliers, Testing the Assumptions of Multivariate Analysis, Incorporating Non Metric Data with Dummy Variables, Managerial Overview of the Results.

Module 3: Logistic Regression

Binary Classification versus Point Estimation, Odds versus Probability, Logit Function, Classification Matrix, Individual Group Classification Efficiency, Overall Classification Efficiency, Nagelkerke R Square, Receiver Operating Characteristic Curve, Sensitivity, Specificity, Area Under ROC Curve, Cut-Offs, True Positive Rate and False Positive Rate.

Module 4: Introduction to Time Series

Nature of Time Series, Components of Time Series, Secular Trend, Seasonal Variations, Cyclical Variations, Irregular Variations, Time Series Decomposition, Smoothing Techniques, Moving Average, Weighted Moving Average, Exponential Smoothing, Double Exponential Smoothing, Regression Trend Analysis, Autocorrelation and Autoregression.

Module 5: Univariate Time Series Models

Tests for Stationarity, Graphical Method, Unit Root Test, Augmented Dickey Fuller Test, Phillips–Perron Test, Schmidt–Phillips Test, KPSS Test, Identification Of ARMA Model Parameter Estimation, Testing Significance with Forecasting, Stationary Restriction for ARMA Models, ARIMA Models, Model Parameter Estimation, Testing Parameter Significance.

Course outcomes:

CO 1: Understand and Implement Techniques of Multivariate Data Summary, Exploratory Data Analysis and Dimensionality Reduction.

CO 2: Apply different Data Cleansing Methods such as Outlier Removal, Missing Values Treatment involving Multivariate Data.

CO 3: Understand, Apply and Deploy Logistic Regression Models and present the findings using Classification Matrices, ROC Curves.

CO 4: Understand, Discuss and Describe Time Series, its Components, Forecasting based on different Smoothing Techniques.

CO 5: Understand and Implement Univariate Time Series Models, Perform several tests such as AD Fuller, KPSS, Parameter Significance.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

Course Outcome	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M			L			M
CO2		M				M	
CO3	H		H		M		
CO4		M		H	M	M	
CO5	M		H		M	M	M

H = Highly Related; M = Medium L = Low

Textbooks:

1. Hair, J. F. et al. (2015). *Multivariate Data Analysis*, 6th edition. NJ: Prentice Hall.
2. Enders, W. (2010). *Applied Econometric Time Series*. Hoboken, NJ: John Wiley & Sons.
3. Tabachnick, B. and Fidell, L (2007). *Using Multivariate Statistics*, New York: Allyn & Bacon.

Reference Books:

1. Menard, S. (2002). *Applied Logistic Regression Analysis*. Thousand Oaks, CA: Sage.
2. Hamilton, J. D. (1994). *Time Series Analysis*. Princeton University Press.
3. Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Newbury Park, CA: Sage.

Audit and Assurance
SUBJECT CODE: BCM 632A
CREDITS: 4

Course Objective:

The Objective of the paper is to develop the knowledge and skills required to carry out an audit and assurance assignment. It provides the working knowledge of the audit process and standards of auditing. It also covers the process of testing internal controls.

Module 1: Audit framework & regulation

Concept of audit & assurance, professional ethics of an auditor, scope of internal & external audit, governance & audit, Ethical threats & Safeguards, discuss the importance and purpose of engagement letters and their contents

Module 2: Audit planning & risk assessment

Planning audit assignments, identify and explain the need for, benefits of and importance of planning an audit, understanding the entity & its environment, assessing audit risk, fraud risk, interim audit, audit documentation, working papers and audit evidence

Module 3: Internal control & audit tests

Internal control system assessment, control environment, risk assessment procedures, monitoring of controls, evaluation of internal control system by auditor, test of controls, communication on internal controls, explain how auditors record internal control systems including the use of narrative notes, flowcharts and questionnaires

Module 4: Audit evidence & reporting

Techniques of collecting audit evidence, quality & quantity of audit evidence, audit sampling, explain the use of automated tools and techniques, review procedures including subsequent events, going concern, written representations, auditor's report contents & opinion, discuss the need for auditors to communicate with those charged with governance.

Module 5: Audit of specific items

Audit of receivables, inventory, payables & accruals, bank & cash, tangible & intangible assets, share capital & reserves, directors' remuneration, details of audit checks for these items and reporting thereof, use of management representation

Course Outcomes:

CO1: Explain the concept of audit & assurance, the functions of audit, ethics and professional conduct

CO 2: Demonstrate how the auditor obtains and accepts audit assignments, assesses audit risks

CO 3: Describe and evaluate internal controls, techniques and audit tests, including IT systems to identify and communicate control risks and their potential consequences

CO 4: Describe the way of gathering & managing audit evidence and review and reporting

CO 5: Managing the audit procedure for specific items

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

<i>Course</i>	Program Outcome
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<i>Outcome</i>							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1							
CO2							
CO3							
CO4							
CO5							

H = Highly Related; M = Medium L = Low

Textbooks:

1. ACCA Study Material 2022 of Kaplan, BPP& Beckers
2. Auditing & Attestation – Published by Wiley India Private Ltd

Reference Books:

1. Saxena, Reddy & Appannaish: A Text of Auditing, Himalayan Publishing House.
2. S.K Basu: Auditing Principles & Techniques, Pearson Education Student’s handbook on Advanced Auditing – by Authors CA G. Sekar & CA B. Sarvana Prasath

Financial Predictive Analytics

SUBJECT CODE: BCM633A

CREDITS: 4

Course Objective:

The Financial Predictive analysis course blends easy-to-use statistical tools with complex machine learning tools and algorithms to equip the participants with the requisite skill set in analyzing data. By the end of this course, the participants should be able to perform financial analysis using powerful tools like R and Python. Whether it is with respect to stock market prediction or customer profitability, finance analytics provides a direction in predicting all.

Module 1: Introduction for Financial Predictive Analytics)

Types of Models, Supervised model, semi supervised model, reinforcement learning model, Regression and classification model, Defining the model objective, collecting the data, picking a model, Tidying data, Assessing regression model, assessing classification model, assessing binary classification model.

Module 2: Regression Models

Standard error of the estimate, Correlation coefficient, ANOVA table for simple linear regression model, Inference in Simple Linear regression model, prediction interval for randomly chosen value of y for given x. The multiple regression analysis equation, Inference in multiple regression, adjusting R², multicollinearity.

Module 3: Classification Models

Introduction, Binomial logistic regression, multinomial logistic regression, Linear discriminant analysis, Quadratic discriminant analysis, Decision Trees, Growing trees, Building decision trees, CART, C5.0 and CHAID Trees, Prediction by decision trees, Model Over fitting.

Module 4: Dimensionality

Introduction, Principal component analysis, the eigen value criterion, Profiling the principal component, communalities, Validation of the Principal component, Applying factor analysis, Factor rotation.

Module 5: Clustering Financial Data

Custer Mechanism, Hierarchical and Non-Hierarchical Clustering, K Means Clustering, Normalizing of Data, Scaling of Data, Distances, Euclidean Distance, Distance Matrix Plot, Centroid, Total Within Sum Squared, Within-group Linkage, Nearest Neighbor, Furthest Neighbor, Centroid Clustering, Ward's Method, Optimum Number of Clusters, Cluster Membership, Agglomeration Schedule, Dendrogram.

Course outcomes:

CO 1: Understand and Implement Techniques under Financial Predictive Analytics such as Model Requirement Specification, Tidying Data and Performance Benchmarking.

CO 2: Conceptualize and implement Financial Data Regression and its applicability based on ANOVA Testing.

CO 3: Implement and Employ the use of Classification Models such as Decision Trees and Logistic Regression based on Financial Data Prediction.

CO 4: Deploying Dimensionality Reduction Models based on Principal Component Analysis and Factor Analysis.

CO 5: Understand and employ the use of Financial Data Clustering based on Hierarchical and K-Mean Clustering Algorithms.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

<i>Course Outcome</i>	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	H			L			M
CO2		M	H			M	
CO3	H		H		M		
CO4		M		M		M	
CO5	M		H	M		M	H

H = Highly Related; M = Medium L = Low

Textbooks:

1. Ralph Winter, 2017, *Practical Predictive analysis*, Packt.
2. James D Miller & Rui Miguel Forte, 2017, *Mastering Predictive Analytics with R*, Packt.

Reference Books:

1. Daniel T Larose & Chantal D. Larose, 2016, *Data Mining And Predictive analysis*, Wiley.
2. Charu Aggarwal, *Data Mining: The Textbook*, 2015, Springer.
3. Hair J.F, 2015, *Multivariate data analysis*, Prentice hall.

E-Accounting
SUBJECT CODE: BCM 634A
CREDITS: 3

Course Objective:

The Objective is to provide the understanding of the digital or computerized accounting system, Students will explore performance, liquid assets, inventories, fixed assets, intangible assets, long-term obligations, investments, equity, and cash flows using different kinds of software. conceptual and practical knowledge of E-Accounting that uses database system resources.

Module 1: Computerized accounting and accounting database sources

Understand the digital mode used for data feed, basics of Computerized accounting, Concepts of Accounting groups, Hierarchy of accounts, Codification in accounting. Accounting package - Setting up an accounting entity, Creation of groups and accounts, accounting standards.

Module 2: Computerized financial accounting

Understand the role of accountants in Designing and creating vouchers, Data Entry operations using the vouchers, Processing for reports to prepare ledger accounts, trial balance and balance sheet, Preparation of different formats and usage of different file types for report uploading and filing.

Module 3: Digital accounting methods

Understand the fundamental functions of Identifying and appreciating the data content in accounting transactions; overview of database concepts, ER model; creating and implementing RDM for Financial Accounting; SQL to retrieve data and generate accounting information, Analyzing forecasts, budgeting & budgetary control.

Module 4: Reporting Analysis

Analyzing and maintaining Accounting reports to appreciate reliability of information, Identifying accounting, information and appropriate queries, Forming and executing the SQL, Generating Accounting information for a report, Reports for expenditure analysis, tracking incomes and managing accounts.

Module 5: Elements of Computerized accounting reporting

Understanding the Creation of data table defining relationships and constraints, Designing Accounting Vouchers, Designing Accounting Reports, designing accounting reports in the form of Journal book, Cash book, Subsidiary books, Ledger, Trial balance, Profit & Loss account, Balance sheet, fund-flow statements.

Course Outcomes:

CO1: This course introduces the students with the understanding about Computerized accounting performed in the real time scenarios.

CO2: The students will learn the accounting process applied in the preparation of the financial reports.

CO3: The students will get a sound understanding of the database system used or maintained in the business for accounting and its procedures of recording.

CO4: The student will get a deep analysis of the various accounting skills that are used by the professional accountants.

CO5: The student will understand the impact of IT systems and financial systems.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

<i>Course Outcome</i>	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1							
CO2							
CO3							
CO4							
CO5							

H = Highly Related; M = Medium L = Low

Textbooks:

1. CA Roshan lodha, *Computerized accounting system & e -filing*, Law points, 2021
2. M. Hanif and A. Mukherjee, *Modern Accountancy*, McGraw H.
3. Pankaj Srivastava, *E-Accounting (theory & practice)*
4. Taxman's , *cracker for principles & practice of Accounting*

Reference Books:

1. Michael E. Gerber, *The E-myth Accountant*.
2. Dr. Arjun Das and Dr. Vishal Saxena, *Accounting Theory and practice*, Navyug Susan Drake, *Practical guide to Finance & Accounting*.

Logistics and Supply Chain Management

SUBJECT CODE: BCM635A

CREDITS: 3

Course Objective:

The course provides knowledge about implementing, controlling, and planning the efficient flow of goods from the supplier to the customers. The course imparts students with an in-depth understanding of the functions and contributions of supply chain management, the concept of logistics management, information systems in logistics, warehousing, and logistics administration.

Module 1: Overview of logistics and its impact on customer value

Nature and concepts – the evolution of logistics concept – logistical mission and strategic issues – logistics in India – the growing importance of logistics management – logistical competitive advantage – strategic logistics planning process – components of logistics management – functions of logistics management - The marketing and logistics interface - delivering customer value – customer service and customer retention - the impact of running out-of-stock - market-driven supply chains - defining customer service objectives - setting customer service priorities - setting service standards - going to market- distribution channels are value delivery system - innovation in the distribution channel - the omni-channel revolution - omni-channel retailing.

Module 2: Overview of supply chain management

Introduction - value chain - functions and contributions - supply chain effectiveness and Indian infrastructure – the framework for supply chain solution - outsourcing and 3PLs - fourth-party logistics (4PLs) - supply chain relationships - conflict resolution strategies for harmonious relationships – the significance of supply chain in building competitive advantage.

Module 3: Elements of logistics & supply chain management

Introduction - positioning of information in logistics and supply chain management - logistics information system (LIS) - operational logistical information system - emerging technologies in logistics and supply chain management.

Module 4: Warehousing and distribution centres

Introduction - concepts of warehousing - types of warehouse - functions of warehousing - warehousing strategy - warehouse design - operational mechanism of warehouse - the omni-channel revolution - omni-channel retailing.

Module 5: Creating a sustainable supply chain & the future

Introduction - evolutionary trends of logistics and supply chain organization - basic organization principles - factors influencing organizational structure - the triple bottom line, greenhouse gasses, and the supply chain - reducing the transport-intensity of supply chains - peak oil - beyond the carbon footprint - reduce, reuse, recycle - the impact of congestion - the supply chain of the future - emerging mega-trends - shifting centres of gravity - the multi-channel revolution - seeking structural flexibility - latest vision- waste in the supply chain - the new industrial revolution - seven major business transformations - the implications for tomorrow’s logistics manager

Course Outcomes:

- CO1: To obtain an understanding of the basics of logistics and supply chain management.
- CO2: To recognize the impact of logistics on creating customer value..
- CO3: To obtain an understanding of the impact of technology in logistics and supply chain management.
- CO4: To learn the concepts of warehousing and distribution centers.
- CO5: To appreciate the significance of creating a sustainable supply chain.

MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM

OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

<i>Course Outcome</i>	Program Outcome						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1							
CO2							
CO3							
CO4							
CO5							

H = Highly Related; M = Medium L = Low

Textbooks:

1. Martin Christopher; Logistics and Supply Chain Management -Fifth edition; Pearson Education Limited, 2016.
2. Saikumari V. – S. Purushothaman; Logistics and Supply Chain Management; Sultan Chand & Sons, 2022.
3. Logistics and Supply Chain Management -A complete guide; The Art of Science, 2021.

Reference Books:

1. Paul R. Murphy and A. Michael Knemeyer; Contemporary Logistics -Twelfth edition; Pearson Education, 2019.
2. Kuldeepak Singh; A Handbook on Supply Chain Management -First edition; Notion Press,2021.
3. Logistics and Supply Chain Management ; SIA Publishers & Distributors Private Limited; 2021.

Value Education II

Subject Code: DIN004A

Credits: 1

Course Objectives

1. To give exposure to students about richness and beauty of Indian way of life. India is a country where history, culture, art, aesthetics, cuisine and nature exhibit more diversity than nearly anywhere else in the world.
2. Making students familiar with the rich tapestry of Indian life, culture, arts, science and heritage which has historically drawn people from all over the world.

Course Outcomes (CO):

At the end of this course students will have:

CO1: Ability to acknowledge and appreciate the ethical beauty of India

CO2: Ability to incorporate the values of human lives in real life applications

Yoga and Meditation

The objective of the course is to provide practical training in YOGA ASANAS with a sound theoretical base and theory classes on selected verses of Patanjali's Yoga Sutra and Ashtanga Yoga. The coverage also includes the effect of yoga on integrated personality development.

Rajasthan Mural Art and Painting

Mural painting is an offshoot of the devotional tradition in Rajasthan. A mural is any piece of artwork painted or applied directly on a wall, ceiling or other large permanent surface. In the contemporary scenario Mural painting is not restricted to the permanent structures and are being done even on canvas. Rajasthani mural paintings are the frescos depicting mythology and legends, which are drawn on the walls of temples, principally in Rajasthan. Ancient temples and tourists places in different States of Rajasthan, display an abounding tradition of mural paintings mostly dating back between the 9th to 12th centuries when this form of art enjoyed Royal patronage. Learning Mural painting through the theory and practice workshop is the objective of this course.

Course on Organic Farming and Sustainability

Organic farming is emerging as an important segment of human sustainability and healthy life. 'Haritamritam' is an attempt to empower the youth with basic skills in tradition of organic farming and to revive the culture of growing vegetables that one consumes, without using chemicals and pesticides. Growth of Agriculture through such positive initiatives will go a long way in nation development. It is a big step in restoring the lost harmony of nature.

Benefits of Indian Medicinal Systems

Indian medicinal systems are one of the most ancient in the world. Even today society continues to derive enormous benefits from the wealth of knowledge in Ayurveda of which is recognized as a viable and sustainable medicinal tradition. This course will expose students to the fundamental principles and philosophy of Ayurveda and other Indian medicinal traditions.

Traditional Fine Arts of India

India is home to one of the most diverse Art forms world over. The underlying philosophy of Indian life is 'Unity in Diversity' and it has led to the most diverse expressions of culture in India. Most art forms of India are an expression of devotion by the devotee towards the Lord and its influence in

Indian life is very pervasive. This course will introduce students to the deeper philosophical basis of Indian Art forms and attempt to provide a practical demonstration of the continuing relevance of the Art.

Science of Worship in India

Indian mode of worship is unique among the world civilisations. Nowhere in the world has the philosophical idea of reverence and worshipfulness for everything in this universe found universal acceptance as it in India. Indian religious life even today is a practical demonstration of the potential for realisation of this profound truth. To see the all-pervading consciousness in everything, including animate and inanimate, and constituting society to realise this truth can be seen as the epitome of civilizational excellence. This course will discuss the principles and rationale behind different modes of worship prevalent in India

Insights into Indian Classical Music

The course introduces the students into the various terminologies used in Indian musicology and their explanations, like Nadam, Sruti, Svaram – svara nomenclature, Stayi, Graha, Nyasa, Amsa, Thala,- Saptatalas and their angas, Shadangas, Vadi, Samavadi, Anuvadi. The course takes the students through Carnatic as well as Hindustani classical styles.

Insights into Traditional Indian Painting

The course introduces traditional Indian paintings in the light of ancient Indian wisdom in the fields of aesthetics, the Shadanga (Six limbs of Indian paintings) and the contextual stories from ancient texts from where the paintings originated. The course introduces the painting styles such as Madhubani, Kerala Mural, Pahari, Cheriya, Rajput, Tanjore etc.

Insights into Indian Classical Dance

The course takes the students through the ancient Indian text on aesthetics the Natyasastra and its commentary the Abhinava Bharati. The course introduces various styles of Indian classical dance such as Bharatanatyam, Mohiniyattam, Kuchipudi, Odissi, Katak etc. The course takes the students through both contextual theory as well as practice time.

Indian Martial Arts and Self Defense

The course introduces the students to the ancient Indian system of self-defense and the combat through various martial art forms and focuses more on traditional Kerala's traditional Kalari Payattu. The course introduces the various exercise technique to make the body supple and flexible before going into the steps and techniques of the martial art. The advanced level of this course introduces the technique of weaponry.

Social Awareness Campaign

The course introduces the students into the concept of public social awareness and how to transmit the messages of social awareness through various media, both traditional and modern. The course goes through the theoretical aspects of campaign planning and execution.

Organic Farming in Practice

Organic agriculture is the application of a set of cultural, biological, and mechanical practices that support the cycling of farm resources, promote ecological balance, and conserve biodiversity. These include maintaining and enhancing soil and water quality; conserving wetlands, woodlands, and wildlife; and avoiding use of synthetic fertilizers, sewage sludge, irradiation, and genetic engineering. This factsheet provides an overview of some common farming practices that ensure organic integrity and operation sustainability.

Ayurveda for Lifestyle Modification

Ayurveda aims to integrate and balance the body, mind, and spirit which will ultimately leads to human happiness and health. Ayurveda offers methods for finding out early stages of diseases that are still undetectable by modern medical investigation. Ayurveda understands that health is a reflection of when a person is living in harmony with nature and disease arises when a person is out of harmony with the cycles of nature. All things in the universe (both living and non-living) are joined together in Ayurveda. This leaflet endow with some practical knowledge to rediscover our pre- industrial herbal heritage.

Life Style and Therapy using Yoga

Yoga therapy is the adaptation of yogic principles, methods, and techniques to specific human ailments. In its ideal application, Yoga therapy is preventive in nature, as is Yoga itself, but it is also restorative in many instances, palliative in others, and curative in many others. The therapeutic effect comes to force when we practice daily and the body starts removing toxins and the rest is done by nature.

*Each student shall write a detailed Report/ Critique on one topic leading to publication of Newspaper/ Magazine article or a review paper in a Research Journal. In addition to s/he will be required to make a Power Point Presentation on the learning and face Viva-voce.

Alternatively a Student may undertake a Project on any one of the topics and submit a detail Project Report leading to publication of Newspaper/ Magazine article or a review paper in a Research Journal. If the topic is related to Performing Arts including Yoga, Marshal Arts etc. the performance on stage may be given instead of PPT. In case of Fine Arts, an exhibition or a portfolio may be presented in place of PPT.

On the basis of the above points, a panel of experts from the department will award the credits.

Life Skills 2 (Aptitude)

Subject Code: DEN004A

Credits: 2

Course Objectives:

1. Students will be able to interpret and communicate quantitative information and mathematical and statistical concepts using language appropriate to the context and intended audience.
2. Students will be able to make sense of problems, develop strategies to find solutions, and persevere in solving them.
3. Students will be able to reason, model, and draw conclusions or make decisions with mathematical, statistical, and quantitative information.
4. Students will be able to critique and evaluate quantitative arguments that utilize mathematical, statistical, and quantitative information.
5. Students will be able to use appropriate technology in a given context.

Course Outcomes (CO): At the end of this course students will have:

CO1: Demonstrate procedural fluency with real number arithmetic operations and use those operations to represent real-world scenarios and to solve stated problems. Demonstrate number sense, including dimensional analysis and conversions between fractions, decimals, and percentages. Determine when approximations are appropriate and when exact calculations are necessary.

CO2: Solve linear equations, graph and interpret linear models, and read and apply formulas. Demonstrate a basic understanding of displays of univariate data such as bar graphs, histograms, dotplots, and circle graphs, including appropriate labeling.

CO3: Take charge of their own learning through good classroom habits, time management, and persistence. Participate in the classroom community through written and oral communication.

Syllabus: Theory

UNIT 1	Number System: a. Number system b. Power cycle c. Remainder cycle d. Factors, Multiples e. HCF and LCM
UNIT 2	Data Arrangements and Blood Relations: a. Linear Arrangement b. Circular Arrangement

	<ul style="list-style-type: none"> c. Multi-dimensional Arrangement d. Blood Relations
UNIT 3	<p>Time and Work:</p> <ul style="list-style-type: none"> a. Work with different efficiencies b. Pipes and cisterns c. Work equivalence d. Division of wages
UNIT 4	<p>Coding & Decoding, Series, Analogy, Odd Man Out and Visual Reasoning:</p> <ul style="list-style-type: none"> a. Coding and Decoding b. Series c. Analogy d. Odd Man Out e. Visual Reasoning
UNIT 5	<p>Percentages, Simple Interest and Compound Interest:</p> <ul style="list-style-type: none"> a. Percentages as Fractions and Decimals b. Percentage Increase / Decrease c. Simple Interest d. Compound Interest e. Relation Between Simple and Compound Interest
UNIT 6	<p>Permutation, Combination and Probability:</p> <ul style="list-style-type: none"> a. Fundamental Counting Principle b. Permutation and Combination c. Computation of Permutation d. Circular Permutations e. Computation of Combination f. Probability
UNIT 7	<p>Data Interpretation and Data Sufficiency:</p> <ul style="list-style-type: none"> a. Data Interpretation – Tables b. Data Interpretation - Pie Chart c. Data Interpretation - Bar Graph d. Data Sufficiency
UNIT 8	<p>Profit and Loss, Partnerships and Averages:</p> <ul style="list-style-type: none"> a. Basic terminologies in profit and loss b. Partnership c. Averages d. Weighted average

Methodology for Evaluation

1. Internal Assessment

a) Class/ Home Assignments (Minimum One from each Unit) : 30 Marks

b) In Semester Tests (Minimum two) : 30 Marks

2. Term End : 40 Marks

*Note: Minimum one class assignment shall be given in each turn in the Lab which will be attempted by the students in the class itself and evaluated by the end of the day. Balance work shall be completed at home and submitted at the beginning of the next turn in Lab.

Suggested Reading:

1. Speed Mathematics, Secrets of Lightning Mental Calculations, by Bill Handley, Master Mind books;
2. The Trachtenberg Speed System of Basic Mathematics, Rupa& Co., Publishers;
3. How to Ace the Brainteaser Interview, by John Kador, Mc Graw Hill Publishers.
4. Quick Arithmetics, by Ashish Agarwal, S Chand Publ.;
5. Quicker Maths, by M tyra& K Kundan, BSC Publishing Co. Pvt. Ltd., Delhi;
6. Owl Purdue University online teaching resource

Semester V

FIFTH SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 636A	Machine Learning For Business Analytics	2	1	2	4	S
BCM 637A	Income Tax	3	1	-	4	C
BCM 638A	Financial Econometrics	3	1	-	4	S
BCM 639A	Marketing Analytics	3	1	-	4	S
BCM 640A	Human Resource Management	3	1	-	3	C
BCM 699A	Summer Training	-	-	10	5	C
	TOTAL	14	5	12	24	

Machine learning for business analytics

Subject Code: BCM 636A

Credits: 4

Learning Objectives: After this course students will gain critical knowledge and understanding about major Machine Learning procedures like Decision Tree, Cluster Analysis, Neural Networks, Support Vector Machine, Bayesian Networks and Machine Learning fundamentals. Students will be able to apply and practice this gained knowledge in variety of Business Scenarios.

Unit 1**Classification and Regression Tree**

Classification & Regression, working of a Decision Tree, Attribute Selection Measures, Information Gain, Gain Ratio, Gini Index, Building Decision Trees, CART, C5.0, and CHAID Trees, Prediction by Decision Tree, Advantages and Disadvantages of Decision Trees, Model Overfitting, Building Decision Trees in R.

Unit 2

Clustering

Cluster Analysis versus Factor Analysis, Overview of Basic Clustering Methods, Agglomerative Hierarchical Clustering, Within-Group Linkage, Nearest Neighbor or Single Linkage, Furthest Neighbor or Complete Linkage, Centroid Clustering, Ward's Method, K-Means Algorithm, Dendrogram, Profiling of Cluster, Cluster Evaluation.

Unit 3

Artificial Neural Networks

Structure of a Neural Network, Input Layer, Hidden Layer, Output Layer, Nodes, Synaptic Weights, Analogy with Biological Neural Network, Scaling of Data, Activation Functions, Hyperbolic Tangent, Sigmoid, Identity, Softmax, Optimization Algorithms, Scaled Conjugate Gradient, Gradient Descent, Model Accuracy.

Unit 4

Support Vector Machine

Decision Boundaries for Support Vector Machine, Maximum Margin Hyperplanes, Structural Risk Minimization, Linear SVM-Separable Case, Linear SVM-Non-Separable Case, Kernel Function, Kernel Trick, Kernel Hilbert Space, Model Evaluation.

Unit 5

Market Basket Analysis

Market Basket Analysis and Association Analysis, Market Basket Data, Stores, Customers, Orders, Items, Order Characteristics, Product Popularity, Tracking Marketing Interventions, Association Rules, Support, Confidence, Lift, Chi-Square Value, Sequential Pattern Analysis.

Reference Books:

- Tang, P.N., Steinback, M. and Kumar, V. (2014). *Introduction to Data Mining*. Pearson.
- Mitchell (2013). *Machine Learning*. McGraw Hill.
- Han, Jiawei and Kamber, Micheline. (2012). *Data Mining: Concepts and Techniques*. Morgan Kaufman Publishers.
- AnandRajaraman. (2011). *Mining of Massive Datasets*. Cambridge University Press.
- Myatt, Glenn and Johnson, Wayne. (2009). *Making Sense of Data II*. Wiley.

Income Tax

Subject Code: BCM 637 A

Credits: 4

Generally, a commerce graduate is expected to have knowledge about taxation. After the implementation of GST in India, taxation structure has become quite simple and multiple taxation has substantially reduced. Whether in employment or having own business or profession, an individual

has to pay income tax and file his income tax return once he starts earning taxable income. This paper aims at making the students understand and apply the basic provisions related to income tax and be able to compute his own income tax liability, timely payment of such tax liability and comply with income tax return filing procedure on year-to-year basis

Unit 1:Income Tax Act, 1961

Meaning, concept and definitions

Residential status and taxability of income

Unit 2: Computation of Taxable Income under different heads of Income

- a. Income from Salary → Salient features, meaning of salary, Allowances and their taxability, Perquisites and their valuation, Deductions from Salary
- b. Income from House Property → Basis of chargeability, Annual Value, Valuation of Self Occupied, Let out and Deemed Let Out Properties, Deductions allowed
- c. Profits and Gains of Business or Profession → Definitions, Deductions expressly allowed, Deductions expressly disallowed, disallowance on the basis TDS non-compliance, Block of Assets method of Depreciation
- d. Income from Capital Gains, Chargeability, Cost of Improvement, Short Term Capital Gains, Long Term Capital Gains, Deductions
- d. Income from Other Sources Chargeability, Deductions, Amounts not deductible

Unit 3: Computation of Total Income → Gross Total Income, Deductions under Chapter VIA, Tax slabs for Individuals, New tax regime effective from A.Y.2021 -22, Choice of assessee to switch -over to new regime, Government philosophy behind new tax regime, Numerical sums on total computation under old and new tax regime

Unit 4: Modes of Tax payment → Advance Tax, Tax Deducted at Source, Self Assessment Tax, Tax on Regular Assessment 06, Viewing Form 26AS on Income Tax site

Unit 5:Income Tax Returns→ Various Income Tax Return Forms and their applicability, Due dates for filing Income Tax Returns, E-filing of Income Tax Returns, E-assessment of Income Tax Returns, Faceless assessment

Note: Provisions as amended and made applicable to current Assessment Year will be considered to be part of the syllabus. Accordingly, for academic year 2021-2022 provisions relevant to A.Y.2021-2022 will apply and so on

Course Learning Outcomes:

On successful completion of the module students will be:

CO1. able to understand basic taxation structure in India as per the Constitution of India.

CO2. able to understand basic provisions regarding computation of taxable income of an individual for the current assessment year, whether from Salary or Business/Profession or other sources of Income.

CO3. able to make numerical calculations of taxable income and exempt income as per the method of calculation prescribed under Income Tax Act, and tax payable on the same.

CO4. acquire knowledge about submission of income tax return, payment of due taxes in the form of advance tax, self-assessment tax and tax deducted at source.

CO5. get acquainted with e-processes related to income tax filing and assessment.

Financial econometrics

Subject Code: BCM638A

Credits: 4

Module Overview

This subject covers the fundamentals of Financial Econometrics. The students will understand and be able to implement different Statistical Algorithms and Concepts based on Econometrics disciplines ranging from Least Squares Method, Multicollinearity, Non-Linear and Responsive Models to Panel Data Regressions.

Learning Objectives

This subject is designed to provide a holistic coverage and introducing the student to the field of Financial Econometrics. The students will learn and understand the implementation and usability of Financial Econometrics domain based on different Statistical Models and advanced Regression Algorithms.

Learning Outcomes

Upon successful completion of this module, students should be able to understand and implement ANOVA, ANCOVA Models, Regression Models in a deeper level. The students will understand the effects of Heteroscedasticity and Multicollinearity and will be able to detect and provide suitable remedies for the same. The students will gain expertise in Modeling Non-Linear, Responsive Models, Dynamic Models and Simultaneous Equation Models.

Unit 1 Ordinary Least Square Regression & BLUE Properties

Methodology of Econometrics. Types of Econometrics. Connection between Econometrics, Statistics and Finance. The Assumptions Underlying The Method of Least Squares. Dummy Variables Regression Models. ANOVA and ANCOVA Models. Problem of Estimation in Regression Models. BLUE property of estimators.

Unit 2 Multicollinearity & Heteroscedasticity

Nature of Multicollinearity. Estimation In The Presence of Perfect Multicollinearity. Estimation In The Presence of “High” But “Imperfect” Multicollinearity. Detection and Remedy of Multicollinearity. OLS Estimation In The Presence of Heteroscedasticity. Detection and Remedy of Heteroscedasticity. Detection and Remedy of Autocorrelation.

Unit 3 Non-Linear & Qualitative Response Models

Estimation of Linear and Nonlinear Regression Models. The Nature of Qualitative Response Models. Logistic Regression Model. PROBIT and TOBIT Models. Model Specification Error or Model Specification Bias. Model Selection Criteria. Types Of Specification Errors. Detecting the Presence of Overfitted Model. Ramsey’s RESET Test and Lagrange Multiplier (LM) Test for Adding Variables.

Unit 4 Dynamic Models & Panel Data Regression

Dynamic Econometric Models. The Role of “Time,” or “Lag,” in Economics. The Koyck Model- The Adaptive Expectations Model. The Stock Adjustment, or Partial adjustment Model. Combination of

Adaptive Expectations And Partial adjustment Models. Panel Data Regression. Fixed Effects Approach. Error Components Approach. Hausman test to decide between FEM and ECM.

Unit 5 Simultaneous Equation Models

Simultaneous Equation Model. Limited Information Methods Versus Full Information Methods. Recursive, Triangular, or Causal Models. Estimation of a Just Identified Equation: The Method of Indirect Least Squares (ILs). Estimation of an Overidentified Equation: The Method Of Two-Stage Least Squares (2sls).

Reference Books:

- Gujarati & Sangeetha (2012). Basic Econometrics. McGraw Hill Publication.
- Chris Brooks (2014). Introductory Econometrics for Finance. Cambridge University Press
- Jeffery M. Woolridge (2009) Introductory Econometrics. Cengage Learning.
- Andrew Bruce, Peter Bruce (2017). Practical Statistics for Data Scientists. O'Reilly Media, Inc.
- Hosmer, Lemeshow & Sturdivant. (2013). Applied Logistic Regression. Wiley.

Marketing analytics

Subject Code: BCM 639A

Credits: 4

Module Overview

This subject demonstrates the aspects of consumer behaviour through novel analytical techniques like Market Basket Analysis, Multi-Dimensional Scaling, Conjoint Analysis, Cluster Analysis along with ethical dimension of reporting results of analysis. Besides theoretical understanding of concepts application on data sets will be covered in this module.

Learning Objectives

Objectives of this module are around building of strong conceptual understanding of consumer behaviour and consumer preferences. Besides, theoretical understanding of concepts, application of the concepts through software is aimed in this module.

Learning Outcomes

Upon successful completion of this modules, students should be able understand the key issues around consumer behaviour along with practical application of the learned concepts on data sets through popular software.

Unit I: Market Basket Analysis

Association Rule Mining, Item & Item-set, Frequency of Transactions, Causal Transactions, Support, Confidence, Predictive Power & Accuracy, Lift – Measure of Association, Item-Transaction Matrix, Density, Length of Rule, Optimum Number of Rules, Apriori Function, Custom Queries, Saving Association Rules.

Unit II: Multi-Dimensional Scaling

Consumer Preference, Distance- Measure of Dissimilarity/Similarity, Dissimilarity/Similarity Matrix, Square Symmetric Matrix, MDS Versus Factor and Cluster Analysis, Euclidean Distance, Iteration History, Stress and Squared Correlations, Stimulus Coordinates, Subject Weights, Derived Stimulus Configuration, Group Plots.

Unit III: Conjoint Analysis

Products & Services Evaluation, Consumer Buying Behaviour, Attributes and Features, Consumer Preference versus Cost to Company, Values to Attributes, Contribution of Attribute, Ordinary Least Square for Contribution, Full-Profile Rating, Full-Profile Ranking, Choice-Based Conjoint Analysis, Hierarchical Bayes Estimation, Polyhedral Methods.

Unit IV: Clustering of Marketing Data

Cluster Mechanism, Hierarchical and Non Hierarchical Clustering, K Means Clustering, Normalising of Data, Scaling of Data, Distances, Euclidean Distance, Distance Matrix Plot, Centroid, Total Within Sum Squared, Within-group Linkage, Nearest Neighbour, Furthest Neighbour, Centroid Clustering, Ward's Method, Optimum Number of Clusters, Cluster Membership, Agglomeration Schedule, Dendrogram.

Unit V: Reporting & Ethical Issues

Importance of Report, Report Preparation, Report Format, Oral Presentation, Research Follow-up, Research Integrity, Misusing Statistics, Falsifying Figures, Withholding Information, Honesty, Accuracy & Completeness in Reporting, Complete Disclosure by Client, American Marketing Association.

References

1. Robert W. Palmatier, Hari Sridhar, 2017, *Marketing Strategy: Based on First Principles and Data Analytics*, Amazon.
2. Mike Grigsby, 2015, *Marketing Analytics: A Practical Guide to Real Marketing*, Kogan Page.
3. Chapman, Christopher N., McDonnell Feit, Elea, 2015, *R for Marketing Research and Analytics*, Springer.
4. Wayne L. Winston, 2014, *Marketing Analytics: Data-Driven Techniques with Microsoft Excel*, Wiley.
5. Stephan Sorger, 2013, *Marketing Analytics*, Amazon.
6. Naresh k. Malhotra, Satya Bhushan Dash, 2010, *Marketing Research*, Pearson.

Human Resource Management

Subject Code: BCM 640A

Credits: 3

Course Objective:

The objective of the subject is to understand the importance of effective and efficient management of human people in an organization to help the business gain a strategic and competitive advantage.

Unit1: Human Resource Management (HRM) - Introduction

Meaning of Human resources – Meaning of HRM – nature and functions of HRM – HR Manager – qualities and qualifications – Strategic Human Resource Management – Strategic management – corporate level strategies – Strategic HR issues – Organizational and HR strategies -

Unit2: Job Analysis, team analysis and Job Environment

Meaning of HR terms – Job design, job rotation, job enlargement, job enrichment, team work – Need for job analysis and team analysis – Job description – job specification – job sharing – ergonomics – employee empowerment – Job redesign

Unit3: Human Resource Planning

Meaning, features and scope of Human Resource Planning – process of and steps in Human Resource Planning – Barriers to effective implementation of Human Resource Planning – Human Resource Planning Vs Strategic planning – Human resource planning through people, finance and technology.

Unit4: Performance appraisal and compensation management

Meaning, need and purposes of performance appraisal – methods of performance appraisal – Group appraisal –Behavioral aspects of performance appraisal – Concept of MBO – the balanced score card – managerial appraisal – challenges of performance appraisal.

Concepts of transfer, promotion and demotion – types of promotions – types of transfer – reasons for demotion – concept of absenteeism – calculation and causes of absenteeism rate – measures to reduce absenteeism – concept of labour turnover – types and causes of labour turnover.

Unit 5: Training and Development

Assessment of training needs – training methods - Apprenticeship, understudy, job rotation, vestibule training, case study, role playing, sensitivity training, In-basket, management games, conferences and seminars, coaching and mentoring, management development programs; Training process outsourcing.

Course Outcomes:

CO1: Understand the role and importance of Human resource Management in effectively managing the human capital in an organization.

CO2: Understand the key terminologies in the context of Human Resource Management and their scope and benefits in a practical environment

CO3: Understand the importance of Human resource planning in the context of people, technology and finance

CO4: Understand the importance of performance appraisal and other concepts in the area of Human resource management

CO5: Understand the methods and purposes of training and development activities to gain a strategic advantage

Summer Training

Subject Code: 699A

Credits: 5

Semester VI

SIXTH SEMESTER						
Sub Code	Sub Name	L	T	P	C	Type
BCM 641A	Logistics And Supply Chain Analytics	3	1	-	4	S

BCM 642A	Accounting And Fraud Analytics	3	1	-	4	S
BCM 643A	Big Data	3		2	4	S
BCM 644A	Hr Analytics	3		2	4	S
BCM 645A	Project Management	4		-	3	C
BCM 646A	Project	-	-	5	5	C
	TOTAL	16	2	9	24	

Logistics and supply chain analytics

Subject Code: BCM 641A

Credits: 4

Module Overview

This subject focuses on the interlinked processes that compose effective logistics and supply chain planning, demand planning, sales and operations planning, and inventory and supply planning with the help of advanced analytics techniques in effective decision making.

Learning objectives

This subject helps the students in understanding the processes, interconnection, and the practical challenges of implementing the planning and the important ways in which analytical tools and methods can be utilized to make better logistics and supply chain planning decisions

Learning outcomes

On successful completion of this module, the student will be able to implement the planning processes using analytical tools and make effective decisions, which will help a company to achieve its targeted balance between efficiency and responsiveness

UNIT I : Introduction

Define Supply Chain and Logistics Analytics, Supply Chain Management Model and Integration, Key Strategic Matric for Cycle Time and Response Time, the global Supply Chain, Information Integrated, Risk Management, Supply Chain Segmentation and Analytics.

UNIT II : Performance, Measures and Analytics

The Role and Purpose of Measures and Control Systems, Level of Analytics and Business Intelligence, Analytics Strategy, Analytics and Business Intelligence Application, Analytics and Supply Chain Segmentation, Demand, Inventory and Supply Planning.

UNIT III: Supply Chain Segmentation Key Concepts and Change Management

Forecast Analysis, Statistical Safety Stock (SSS), Optimal Service Level (OSL), Coefficient of Variation (COV), Re-Order Point Cycle (ROP), Economic Order Quantity (EOQ), Optimal Inventory Level (OIL), Min / Max (MM) Planning, Build to Order (BTO) / Manufacture to Order (MTO) Planning, Quality Function Deployment (QFD), Total Quality Management (TQM), Concept Management.

UNIT IV: Global Supply Chain Analytics

Integrating Data into Supply Chain Intelligence, Global Sales, Promotion and Sourcing Analytics, Contract Manufacturing Analytics, Distribution Analytics, Transportation and Logistics Analytics, Integrating Functional Analytics into Global Supply Chain Management.

UNIT V: Metrics and KPI's

Increase Profitability, Forecast Accuracy, Working Capital Improvement, operating Margin Improvement, Positive and Negative Variance, Maturity Models, Reference Models, Benchmarking, Applying Goals to Supply Chain, Demand Forecasting, Invoice Reporting, Inventory Visibility, Procurement Reporting.

References

1. Philip M. Parker, 2019, *The 2020-2025 World Outlook for Supply Chain Analytics*, ICON Group International.
2. Kusum Deep & Madhu Jain, 2018, *Logistics, Supply Chain and Financial Predictive Analytics: Theory and Practice*, Springer.
3. Blokdyk, 2017, *Supply Chain Analytics: Beginner's Guide*, The Art of Service.
4. Hokey Min, 2016, *Global Business Analytics Models: Concepts and Application in Supply Chain, Financial Analytics*, Springer FT Press
5. Muthu Mathirajan, Chandrasekharan Rajendran, 2015, *Analytics in Operations/ Supply Chain Management*, Kindle.
6. Gerharld J. Plenert, 2014, *Supply Chain Optimization through Segmentation and Analytics*, Kindle.

Accounting and fraud analytics

Subject Code: BCM 642A

Credits: 4

Module Overview

This subject covers the fundamentals of Accounting and Fraud Analytics, the strategies involved in detecting, identifying and assessing financial frauds, conceptualizing several algorithms which are implemented to detect frauds and assess them along with a Case Study in R Programming to detect frauds using several approaches.

Learning Objectives

This subject is designed to provide a holistic coverage and introducing the student to the field of Accounting and Fraud Analytics. The students will develop an understanding of its importance, the practical use of analytical algorithms and their analysis to aid in Detecting Frauds.

Learning Outcomes

Upon successful completion of this module, students should be able to Recognize the types of Data Anomalies and Signs of Fraud, Implement Data Mining Algorithms to Detect, Identify and Assess Frauds within a Financial Statement, Apply numerous fundamental, advanced and non-traditional mining techniques.

Unit I: Introduction

Accounting Fraud Data Analytics, Fraud Scenarios, Critical Fraud Concepts, Understanding Auditors Fraud related responsibilities, Identifying Corporate Vulnerabilities, Risks and Threats, Financial Fraud Data Analytics Methodology, Critical Considerations for the Fraud Data Analytics, False Positive Conundrum, Axioms of Fraud Analytics.

Unit II : Data Mining Strategies

Strategies for Financial Fraud Analysis, Pattern Recognition and Frequency Analysis, Using Critical Data Elements, building a Fraud Analytics Plan, Data Issues, Availability, Reliability, Usability, Defining the Scope, Creating Planning Reports, Data Mining for Shell Companies, Building Search Routines, Correlation to Transactional Data.

Unit III : Fraud Detection Algorithms

Clustering with Financial Data, Clustering Methods- K-Means, Hierarchical, Comparative Study, Dimensionality Reduction, Parametric Approach to Dimension Reduction, Apriori Algorithm, Expectation-Maximization for Knowledge Discovery, Classification and Regression Tree, Adaboost, Naïve Bayes, Understanding Outlier Rankings.

Unit IV : Data Analysis Tests

Detecting Billing and Checking Tampering Schemes, Finding Frauds within Payroll and Expense Reimbursement Functions, Detecting Theft of Cash Receipts and Inventory, Corruption Scheme Detection, Analysing External Financial Records, Detecting Financial Statement Frauds, Identifying Anomalies, Uncovering Financial Statement Manipulation.

Unit V : Detecting Fraudulent Transactions: Case Study

Problem Description and Objectives, Available Data and Features, Loading the Dataset, Exploring, Data Problems, Defining Data Mining Tasks, Evaluation Criteria, Experimental Methodology, Obtaining Outlier Rankings using Supervised and Unsupervised Approaches, Reporting Summary Statistics.

References

1. Leonard W. Vona, (2017), *Fraud Data Analytics Methodology*, Wiley.
2. William H. Beecken, (2017), *Fraud Examination Case Book with Documents*, Wiley.
3. Luis Torgo, (2017), *Data Mining with R: Learning with Case Studies*, Chapman.
4. S. Christian Albright and Wayne L Winston, (2016), *Business Analytics: Data Analysis & Decision Making*, Cengage Learning.
5. Steven J. Miller, (2015), *Benford's Law: Theory and Applications*, Princeton.
6. Bart Baesens, (2015), *Fraud Analytics Using Descriptive, Predictive and Social Network Techniques*, Wiley

Big data

Subject Code: BCM 644A

Credits: 4

Module Overview

This module forms an introduction as well an in-depth study in the field of Big Data and Hadoop. It comprises of the fundamentals as well as advanced topics needed to progress in this technology. The

students will learn about the applications, usage and several use case scenarios pertaining to Big Data-Hadoop where they can use the knowledge and progress ahead.

Learning Objectives

This course will help students gain knowledge and understanding about Big Data Technology, Hadoop Ecosystem and various tools related to it. The students will learn about the HDFS File System, Map Reduce Framework, analysing data using Hbase and Hive along with the Integration of R with Hadoop.

Learning Outcomes

Upon successful completion of this module, students should be able to:

- Understand the fundamentals of Big Data and its Applications in various Domains.
- Conceptualize and Incorporate the Technologies behind Big Data.
- Understand HDFS File Structure, Map Reduce Framework, the architectures related to them and to use them to solve complex problems.
- Integrate R with Hadoop and solve analytical problems.
- Understand and Use Hive/Hbase shell pertaining to relational data handling under Hadoop.

Unit I : Introduction to Big Data

What Is Big Data? History of Data Management, Evolution of Big Data, Structuring of Big Data, Elements of Big Data, Application of Big Data in the Business Context, Careers in Big Data. Business Applications of Big Data: The Significance of Social Network Data, Financial Fraud and Big Data, Fraud Detection in Insurance, Use of Big Data in the Retail Industry.

Unit II : Technologies for Handling Big Data

Distributed and Parallel Computing for Big Data, Understanding Hadoop, Cloud Computing, Grid Computing and In-Memory Technology for Big Data. VMWare Installation of Hadoop, Linux and its Shell Commands, Different Hadoop Distributions and their advantages, Hortonworks, Cloudera, MapR.

Unit III : Understanding the Hadoop Ecosystem

The Hadoop Ecosystem, Storing Data with HDFS, Design of HDFS, HDFS Concepts, Command Line Interface to HDFS, Hadoop File Systems, Java Interface to Hadoop, Anatomy of a file read, Anatomy of a file write, Replica placement and Coherency Model. Parallel Copying with distcp, keeping an HDFS Cluster Balanced.

Unit IV : Map Reduce Fundamentals

Origins of Map Reduce, How Map Reduce Works, Optimization Techniques for Map Reduce Jobs, Applications of Map Reduce, Java Map Reduce classes (new API), Data flow, combiner functions, running a distributed Map Reduce Job. Configuration API, setting up the development environment, Managing Configuration.

Unit V : Hive, Hbase and R-Hadoop

Understanding R-Hadoop, Integration Procedure, Packages needed for R under Hadoop Ecosystem, Text Mining for Deriving Useful Information using R within Hadoop, Introduction to Hive & Hbase, Hive and Hbase Architecture, Understanding Queries, Mining Big Data with Hive & Hbase.

References

1. Arshdeep Bahga, 2016, Big Data Science & Analytics: A Hands-On Approach, VPT.
2. Tom White, 2012, Hadoop: The Definitive Guide, O'Reilly.
3. Adam Shook and Donald Miner, 2012, Map Reduce Design Patterns: Building Effective Algorithms and Analytics for Hadoop and Other Systems, O'Reilly.
4. Dean Wampler, Edward Capriolo & Jason Rutherglen, 2012, Programming Hive, O'Reilly.
5. Lars George, 2011, HBase - The Definitive Guide: Random Access to Your Planet-Size Data, O'Reilly.

Hr analytics

Subject Code: BCM 644A

Credits: 4

Module Overview

This subject provides a practical approach of using data to solve real HR challenges in organizations and demystifies analytics with clear guidelines and recommendations for making the business case, HR analytics function, avoiding common pitfalls, presenting data through visualization and storytelling.

Learning objectives

This subject helps in understanding all the key elements of HR including recruitment, employee engagement, performance management, and examines the ways data can contribute to organizational success by optimizing processes, driving performance and improving HR decision making.

Learning outcomes

On Successful Completion, the student will be able to access framework with analytics, advanced statistical technique, key trends and patterns in order to develop effective evidence-based HR strategies and business decisions.

UNIT I : Introduction

Define the Business Challenge, Understand the Analytics Domain, Human Capital Analytics, Forming Hypothesis, Explore Complex Analysis, Using Data for Informed Decision, Evaluating the Intervention and Data, Business Strategy, Competitive Advantage and Integration, Develop Hypothesis, HR Matrix, Various Statistical Test.

UNIT II : Articulating Business Value and Analytical Problem Solving

Analytics Business Model, Analytics Value Chain, Training Value Measurement Model, Structure and Team Building, Analytics Capabilities and Effectiveness, Linkage to Business Outcome, Measuring Analytics Impact on Business Outcome, Research Evidence on Impact HR Program, Deep and Wide Approach, Building the Cube.

UNIT III : Workforce Analytics

Business Levers of Organization Structure, Strategy and Manpower Planning, Traditional Measures of Organization Structure, Competitive Usage of Organization Structure, Organization shaping and

Employee Growth, Measuring the Aspect of Organization Structure, Design and Supervisory Ratios, Demographics and Succession Planning.

UNIT IV : Acquiring High-Quality Talent and Development

Effective and Emerging Measures of Talent Acquisition, Opportunity Cost of Cycle Time, Validity of Hiring Specifications, Importance of Quality of Hire, Measuring and Improving Process Capability, Measuring Returns on Investments on Talent Development Initiatives, Right Metrics and Measures for Strategic Alignment.

UNIT V : Talent Engagement, Measure, Retention and Compensation Measuring Attrition, LTM (Analytical Problem Solving) or YTD (Year to Date), Employee Retention. Predictive Modelling for Attrition Analysis, Competency Baselining and Usage, Leadership Development, Valuing Benefits using CTC Statement, Portfolio Management of Benefits, Tailoring Variable Pay to Performance Based on Data.

References

1. Mike West, 2019, *People Analytics: Business & Personal Finance*, Dummies.
2. Shonna D. Waters, 2018, *Practical Guide to HR Analytics*, Kindle.
3. Dr Martin R. Edwards and Kirsten Edwards, 2016, *Predictive HR Analytics: Mastering the HR Metric*, Kindle.
4. Bernard Marv, 2018, *Data-Driven: How to use Analytics and Metrics to Drive Performance*, Kindle.
5. Mong shen Ng, 2018, *Predictive HR Analytics*, Kindle.
6. Ramesh Soundarajan, 2016, *Winning on HR Analytics: Leveraging Data for Competitive Advantage*, Kindle.

Project Management

Subject Code: BCM 645A

Credits: 3

Unit 1: The nature of project

Determine the distinguishing features of projects and the constraints they operate in. Discuss the implications of the triple constraints of scope, cost and time. Discuss the relationship between organisational strategy and project management. Identify and plan to manage risks. Advise on the structures and information that have to be in place to successfully initiate the project. Explain the relevance of projects to process re-design, e- business systems development and quality initiatives.

Unit 2: The project life cycle and building the business case

Techniques of project appraisal – payback period, Accounting rate of return, NPV, IRR. Describe the structure and contents of a business case document. Analyse, describe, assess and classify benefits of project investment. Analyse, describe, assess and classify costs of project investment. Evaluate the costs and benefits of a business case using standard techniques. Establish responsibility for the delivery of benefits.

Unit 3: Managing and Leading projects

Discuss the organisation and implications of project-based team structures. Establish the role and responsibilities of the project manager and the project sponsor. Identify and describe the typical problems encountered by project manager when leading the project. Advise how these typical problems can be addressed and overcome.

Unit 4: Planning, monitoring and controlling projects

Discuss the principles of a product breakdown structure. Assess the importance of developing a project plan. Monitor the status of the project and identify project risks, issues, slippage and changes. Formulate response for dealing with project risk, issues, slippage and changes. Discuss the role of benefits management and project gateways in project monitoring.

Unit 5: Concluding a project

Establish mechanism for successfully concluding the project. Discuss the relative meaning and benefits of a post implementation and a post project review. Discuss the meaning and value of benefits realisation.

Project

Subject Code: BCM 646A

Credits: 5