

(Applicable to the batch of students admitted in the academic year 2026-2027)

B.Com.(Business Analytics) (CBCS)

FACULTY OF COMMERCE, IIMC

**B.Com.(Business Analytics)**  
**I & II Semester Syllabus (CBCS)**  
(w.e.f. 2026-27)



**FACULTY OF COMMERCE**  
**INDIAN INSTITUTE OF**  
**MANAGEMENT & COMMERCE**  
**Autonomous College (UG & PG)**

# 6-1-91, Khairatabad, Hyd- 500 004, T.S

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Dean (Academic)  
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**B.COM (Business Analytics)  
CBCS COURSE STRUCTURE  
w.e.f. 2026-2027**

Sl. No. (1)	Code (2)	Course Title (3)	HPW (5)	Credits (6)	Exam Hrs (7)	Marks (8)
<b>SEMESTER - I</b>						
1.	AEC1	English (First Language)	5	5	3 hrs	70+30I
2.	SLS1	Second Language	5	5	3 hrs	70+30I
3.	MJR101	Financial Accounting-I	5	5	3 hrs	70+30I
4.	MJR102	Business Organization and Management	5	5	3 hrs	70+30I
5.	MJR103	Data-driven Decision Making	3T+4P 5	5	2 hrs	50T+35P+15I
6.	Non-CGPA Course	Basics of Artificial Intelligence				50
<b>Total</b>			<b>25</b>	<b>25</b>		
<b>SEMESTER - II</b>						
1.	AEC2	English (First Language)	5	5	3 hrs	70+30I
2.	SLS2	Second Language	5	5	3 hrs	70+30I
3.	MJR201	Financial Accounting-II	5	5	3 hrs	70+30I
4.	MJR202	Business Laws	5	5	3 hrs	70+30I
5.	MJR203	Data Analytics Essentials	3T+4P 5			50T+35P+15I

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SEMESTER-I

Paper MJR 101: FINANCIAL ACCOUNTING - I

PAPER CODE: MJR 101:  
THPW: 5; Credits: 5

Total Marks: 70U+301-100  
ESED: 3 HRS

**Objective:** To acquire conceptual knowledge of basics of accounting and preparation of final accounts of sole trader.

**Course Objectives:**

1. To understand the accounting process.
2. To classify and record various business transactions in the respective subsidiary books.
3. To know the reasons for disagreement of cash book and bank passbook balances.
4. To identify and rectify the accounting errors at various stages of accounting cycle.
5. To prepare the final accounts of the sole trader.

**Course Outcomes:**

1. Describe and understand the accounting principles and recording of business transactions in Journal.
2. Prepare ledgers and subsidiary books.
3. Prepare and analyse the bank reconciliation statement.
4. Understand the way of rectification of errors in the books of accounts.
5. Understand the needs of preparing financial statements with adjustments.

**UNIT-I: ACCOUNTING PROCESS**

Financial Accounting: Introduction - Definition - Evolution - Functions - Advantages and Limitations - Users of Accounting Information Branches of Accounting - Accounting Principles: Concepts and Conventions - Accounting Standards - Meaning - Importance - List of Accounting standards issued by ASB - Accounting System - Types of Accounts - Accounting Cycle - Journal - Ledger and Trial Balance. (Including Problems)

**UNIT-II: SUBSIDIARY BOOKS AND RECTIFICATION OF ERRORS**

Meaning - Types: Purchases Book - Purchases Returns Book - Sales Book - Sales Returns Book - Bills Receivable Book - Bills Payable Book - Cash Book: Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper (Including Problems)

Rectification of Errors: Types of Errors - Suspense Account - Effect of Errors on Profit (Including Problems)


**UNIT-III: BANK RECONCILIATION STATEMENT**



Meaning - Need Reasons for differences between Cash Book and Passbook balances - Favourable and Overdraft balances - Ascertainment of correct Cash Book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement (Including Problems)

**UNIT-IV: DEPRECIATION ACCOUNTING**

Depreciation (Ind-AS-16): Meaning - Causes - Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation - Factors affecting depreciation - Accounting Treatment - Methods of Depreciation: Straight Line Method - Diminishing Balance Method and Sum of the Units Method (Including Problems)

  
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## UNIT-V: FINAL ACCOUNTS OF SOLE TRADER

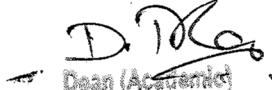
Capital and Revenue Expenditure - Capital and Revenue Receipts: Meaning and Differences - Deferred Revenue Expenditure. Final Accounts of Sole Trader: Meaning - Uses - Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet - Adjustments - Closing Entries. (Including problems)

An overview of Computerised Accounting. (Theory only)


### SUGGESTED READINGS:

1. Haneef and Mukherjee: Accountancy-I: Tata McGraw Hill Company.
2. R. L. Gupta & V. K. Gupta: Principles & Practice of Accounting: Sultan Chand.
3. S. P. Jain & K. L. Narang: Accountancy-I: Kalyani Publishers.
4. Tulasian: Accountancy-I: Tata McGraw Hill Company.
5. T. S. Grewal: Introduction to Accountancy: S. Chand and Company.
6. Prof. Prashanta Athma: Financial Accounting -I: Himalaya Publishing House Pvt Ltd.
7. S. N. Maheshwari & V. L. Maheshwari: Advanced Accountancy-I: Vikas House. Publishing
8. Deepak Sehgil: Fundamentals of Financial Accounting: Tax Mann Publication.
9. Jawahar Lal: Financial Accounting: Himalaya Publishing House.
10. Kamatam Srinivas: Financial Accounting -I: S Publishers.
11. Kamala Devi, Dr Padmalatha, Rachana Sharma: Financial Accounting-I: Professional Books Publisher.
12. Dr. K. Naveen Kumar: Financial Accounting -1: Vedashree Publishers.

  
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**SEMESTER-I**

**Paper MJR 102: BUSINESS ORGANIZATION AND MANAGEMENT**

**PAPER CODE: MJR 102:**

**THPW: 5; Credits: 5**

**Total Marks: 70U+301-100**

**ESED: 3 HRS**

**Objective:** To acquaint the students with the basics of Commerce and Business concepts and functions, forms of Business Organization and functions of Management.

**Course Objectives:**

1. To know the forms of business organization.
2. To understand the meaning and classification of joint stock companies.
3. To know the meaning and functions of management.
4. To study the importance of planning and organizing in a business organization.
5. To differentiate the concepts of authority, power, accountability, responsibility, delegation and decentralization.

**Course Outcomes:**

1. Describe and understand the forms of business organization.
2. Knows the forms of companies and important documents.
3. Equips with the application of Fayol's 14 principles of management.
4. Understand the benefits of planning and organizing in an organization.
5. Gain confidence in proper use of authority, responsibility, centralization, decentralization, coordination, and cooperation and control terms.

**UNIT-I: INTRODUCTION**

Concepts of Business, Trade, Industry and Commerce - Objectives and functions of Business Social Responsibility of a Business –

Forms of Business Organization - Meaning, Characteristics, Advantages and Disadvantages of Sole Proprietorship - Meaning, Characteristics, Advantages and Disadvantages of Partnership - Kinds of Partners - Partnership Deed -Concept of Limited liability partnership – Meaning, Characteristics, Advantages and Disadvantages of Hindu Undivided Family - Meaning, Advantages and Disadvantages of Co-Operative Organization.(incl. Case studies)

**UNIT-II: JOINT STOCK COMPANY**

Joint Stock Company - Meaning - Definition - Characteristics - Advantages and Disadvantages - Kinds of Companies - Promotion - Stages of Promotion - Promoter - Characteristics - Kinds - Preparation of Important Documents Memorandum of Association Clauses Articles of Association - Contents - Prospectus - Contents - Red herring Prospectus- Statement in lieu of Prospectus (As per Companies Act-2013) .(incl. Case studies)


**UNIT-III: FUNCTIONS OF MANAGEMENT**

Management - Meaning - Characteristics - Functions of Management - Levels of Management-Skills of Management - Scientific Management - Meaning Definition - Objectives - Criticism - Fayol's Principles of Management. (incl. Case studies)

**UNIT-IV: PLANNING AND ORGANISING**

Meaning - Definition - Characteristics - Types of Plans - Management by Objectives (MBO)

Definition of Organizing-Organization-Process of Organizing - Principles of Organization - Organization Structure - Types of Organization Structure-Span of Control .(incl. Case studies)




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## UNIT-V: AUTHORITY AND CONTROL


Meaning of Authority, Power, Responsibility and Accountability - Delegation of Authority - Decentralization of Authority

Control - Meaning - Definition - Relationship between Planning and Control - Steps in Control - Requirements for Effective Control. (incl. Case studies)

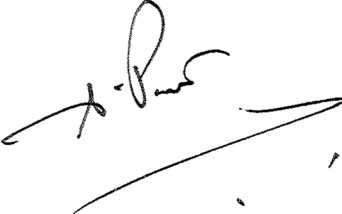
### SUGGESTED READINGS:

1. RK Sharma & Shashi K. Gupta: Business Organization & Management: Kalyani Publishers
2. Patrick Anthony: Business Organization & Management: Himalaya Publishing House
3. Dr. Manish Gupta, Business Organization & Management: PBP.
4. R. D. Agarwal: Organization & Management: McGraw Hill.
5. S.A. Sherlekar, V.S. Sherlekar: Modern Business Organization: Himalaya Publishing House
6. C.R. Basu: Business Organization & Management: Tata McGraw Hill
7. M.C. Shukla: Business Organization & Management: S. Chand
8. D.S. Vittal: Business Organization and Management: S. Chand
9. V.S.P. Rao: Organizational Behavior Text & Cases: Himalaya Publishing House
10. Uma Shekaram: Business Organization & Management: Tata McGraw Hill
11. Dr. R. Sushama, Mrs. R. Renuka: Business Organisation and Management: Vedashree Publishers. 12) Dr. R. Sridhar : Business Organisation and Management: S Publishers.
12. Sherlekar & Khuspat Jain: Business Organization & Management: Himalaya Publishing House
13. RK Chopra: Office Organization & Management: Himalaya Publishing House
14. RS Gupta & BD Sharma: Principles and Practice of Management: Kalyani Publishers

  
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**SEMESTER-1**

**Paper MJR 103: DATA-DRIVEN DECISION MAKING**

**PAPER CODE: MJR 103:**

**Total Marks: 50T+20P+30I =100**

**THPW: 3T+4P; Credits: 5 ESED: 2 HRS**

**Objective:** To make students learn data-driven decision making

**UNIT-I: DISRUPTION**

Challenges: Identify hurdles to becoming a data-driven organization - Opportunities: Analyze data practices in the organization - Identify how data can benefit the organization - Distinguish how to be a proactive data practitioner

**UNIT-II: BUSINESS ANALYTICS PRE-REQUISITES**

Business Analysis Principles: Identify the categories of analytical people - Distinguish and define roles and responsibilities of professionals in data analysis - Data Driven Decision Making: Identify cultural barriers - Distinguish solutions to cultural and cross-functional barriers - Identify six steps of the data-driven decision-making model.

**UNIT-III: BUSINESS ANALYTICS ECOSYSTEM**

Relational Databases: Nature of relational databases - Purpose of the SQL language - Key aspects of ACID - Meaning of ETL - Not Only SQL: Big data and other data storage tools - Interacting with MongoDB - Document stores and graph stores - Big Data: Key functions of big data technologies - Utility of Hadoop - Purpose of MapReduce - Statistical Tool, Machine Learning, and Data Visualization: Tools for statistical analysis - Python and R - Purpose of machine learning - Visualization tools.

**UNIT-IV: DATA LIFECYCLE MANAGEMENT**

Data Life Cycle: Identify the stages in the data life cycle - Data in the organization: Distinguish between ways that data enters the organization - Identify the forms data takes as it is stored and used within the organization.

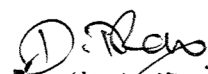
**UNIT-V: REQUIREMENTS GATHERING**


Requirements gathering process: Analyze why requirement gathering process is critical to proper analysis - 3 V's of data: Distinguish between the ways data is consumed (the three V's of data) - Customer journey map: Understand how requirement gathering fits with the development of a customer journey map - Distinguish between the stages of the customer journey map

**SUGGESTED READING:**

1. Data Analysis Fundamentals Certificate; AICPA
2. Fundamentals of Business Analytics, 2nd Edition; R N Prasad, Seema Acharya; Wiley
3. Business Analysis with Microsoft Excel and Power BI, 5th edition; Conrad G. Carlberg; Pearson
4. Monetizing Your Data: A Guide to Turning Data into Profit-Driving Strategies and Solutions; Andrew Roman Wells, Kathy Williams Chiang; Wiley
5. 5. AI and Analytics, Accelerating Business Decisions; Sameer Dhanrajani; Wiley
6. Data Analytics with R; Bharti Motwani; Wiley.

  
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# Semester-I

## Non-CGPA Course: Basics of Artificial Intelligence

No. of Hours: 40 hrs

Max. Marks: 50

### Unit-I: Introduction to Artificial Intelligence


Definition of Artificial Intelligence - Evolution of AI - Components of AI Systems - AI vs Human Intelligence - AI vs Traditional Computer Programming - AI Technologies - Introduction to Expert Systems- AI in Daily Life (Google Maps, Alexa, Chatbots, Recommendation Systems) - Benefits and Limitations of AI - Impact of AI on Business Growth.


### Unit-II: AI Applications and Tools

Introduction to AI Tools (ChatGPT, Google AI tools, AI in MS Excel & Business Analytics) - Basics of Prompt Writing - AI for Report Writing and Presentations - AI Ethics and Responsible AI - Data Privacy and Security Issues - Bias and Fairness in AI - Legal Issues of AI in Business - Future Careers in AI.


### Suggested Readings:

1. AI for Everyone - Andrew Ng - 1st Edition (2022) - Landing AI
2. Artificial Intelligence: Foundations of Computational Agents - David Poole and Alan Mackworth - 3rd Edition (2023) - Cambridge University Pres

  
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SEMESTER-II

Paper MJR 201: FINANCIAL ACCOUNTING - II

PAPER CODE: MJR 201:  
THPW: 5; Credits: 5

Total Marks: 70U+30I-100  
ESED: 3 HRS

**Objective:** To acquire accounting knowledge of Consignment accounts and other business accounting methods.

**Course Objectives:**

1. Understand the concepts and accounting treatment for consignment accounts,
2. Learn the methods of recording and preparing joint venture accounts.
3. Develop skills in accounting for incomplete records and single-entry system
4. Familiarize with accounting for non-profit organizations.
5. Learn the accounting treatment of hire purchase, instalment purchase, and lease transactions.

**Course Outcomes:**

1. Prepare accounting records for consignment accounts
2. Record joint venture transactions and prepare joint venture accounts.
3. Convert incomplete records to double-entry system and prepare financial statements
4. Prepare financial statements for non-profit organizations, including receipts and payments account, income and expenditure account, and balance sheet
5. Prepare accounts under hire purchase and instalment purchase systems and explain the basics of lease accounting.

**UNIT-I: CONSIGNMENT ACCOUNTS**

Consignment - Meaning - Features - Proforma invoice - Account sales - Del credere commission-Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock (Focusing on proportionate non-recurring expenses) - Treatment of Normal and abnormal Loss - Invoice of goods at a price higher than the cost price (Including problems)

**UNIT-II: JOINT VENTURE ACCOUNTS**


Joint Venture - Meaning - Features - Difference between Joint Venture and Consignment - Accounting Procedure - Methods of Keeping Records for Joint Venture Accounts - Method of Recording in co-ventures books (When separate books are not maintained) -Separate set of Books Method - Joint Bank Account - Brief overview of Memorandum Joint Venture Account (Including problems)

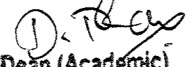
**UNIT-III: ACCOUNTS FROM INCOMPLETE RECORDS**



Single Entry System - Meaning - Features - Difference between Single Entry and Double Entry systems - Defects in Single Entry System - Books and accounts maintained - Ascertainment of Profit - Statement of Affairs Method - Conversion method (Preparing complete trading, Profit and Loss Account and Balance Sheet (Including problems)

**UNIT- IV: ACCOUNTING FOR NON- PROFIT ORGANISATIONS**

Non- Profit Organization - Meaning - Features - Receipts and Payments Account - Income and Expenditure Account - Balance Sheet. Treatment of Special items like Entrance Fees, Donations, Legacy, etc, - Calculation of consumables (E.g., Stationery, Medicines) and Stock adjustments (Including problems)

  
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## UNIT – V: HIRE PURCHASE SYSTEM, INSTALMENT PURCHASE SYSTEM AND LEASE ACCOUNTING


Hire Purchase System - Features - Accounting Treatment in the Books of Hire Purchaser and Hire Vendor -Default and Repossession – Instalment purchase System Difference between Hire purchase and Instalment purchase systems -Accounting Treatment in the books of Purchaser and Vendor (Including problems)

Lease Accounting – Features – Types (Theory Only)


### SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Co.
2. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
3. Accountancy-1: Tulasian, Tata McGraw Hill Co.
4. Financial Accounting -1: Prof. Prashanta Athma: Himalaya Publishing House Pvt Ltd.
5. Financial Accounting -II: Prof. K. Krishna Chaitanya: Kamala Devi, Kalyani Publishers-2025.
6. Financial Accounting II: S.P. Jain & K.L. Narang, Kalyani publishers. 2 Revised Edition-2017
7. Advanced Accountancy-1: S.N.Maheshwari&VI. Maheswari, Vikas.
8. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.
9. Financial Accounting: M.N Arora, Tax Mann Publications.
10. Financial Accounting 1: Dr. K. Naveen Kumar: Vedasthree Publishers-2024
11. Financial Accounting-11: Prof. Kamatam. Srinivas, S. Publications-2025.
12. Financial Accounting-II: Mrs. K. Archana, P. Subhashini, SV Publication. First Edition-2025
13. Financial Accounting-II: Dr Yogeshwaran, E.V. Chandramohan Sastry, Professional books Publishers. New edition-2025, Year of Publication-2018
14. Financial Accounting-II: Prof Prabhu Sahai, Mary Vinaya Sheela and Others, DI. Publishers and Distributors 2025
15. Financial Accounting-11: Dr K Naveen Kumar and Dr D Sreekam Vedashree Publishers-2025.

  
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SEMESTER-II

Paper MJR 202: BUSINESS LAWS

PAPER CODE: MJR 202:  
THPW: 5; Credits: 5

Total Marks: 70U+301-100  
ESED: 3 HRS

**Objective:** To understand basics of contract act, sales of goods act. IPRs and legal provisions applicable for establishment, management and winding up of companies in India.

**Course Objectives:**

1. Understand the fundamentals principals and application of Indian Contract Act, 1872.
2. Analyze the Key provisions of the Sale Goods Act, 1930 and the Consumer Protection Act, 2019
3. Learn about the Intellectual Property Rights, (IPRs) Protection.
4. Understand Legal aspects of Company Management and Governance under the Companies Act, 2013.
5. Study the modern process of corporate insolvency and liquidation under the insolvency and bankruptcy Code (IBC). 2016

**Course Outcomes:**

1. Analyze and apply contract law principles to business transactions
2. Understand consumer rights and protection under the Consumer Protection Act
3. Identify and protect intellectual property rights, including trademarks, patents, and copyrights
4. Apply company law principles to manage companies and conduct meetings
5. Understand the process of winding up and insolvency laws, including the Insolvency and Bankruptcy Code.

**UNIT - I – Indian Contract Act, 1872**

Agreement – Contract – Essentials of Valid Contract –Types of Contracts – Foundation Concepts –Basics Classification – Express Contract – Implied/Tacit Contract Quasi Contract – E-Commerce – Validity Basics Valid Contract – Void Contract – Void ab initio – Voidable Contract Unenforceable Contract – Illegal Contract Execution Basis – Executed – Executory – Bilateral – Unilateral Meaning of Offer – Acceptance Communication of Offer and Revocation of Offer and Acceptance – Capacity to Contract – Free Consent – Coercion – Undue Influence – Fraud Consideration – Its Essentials – Meaning & Discharge of Contract – Breach of Contract Remedies for Breach of Contract Meaning of Contract of Indemnity – Contract of Guarantee.


**UNIT – II – Sale of Goods Act, 1930**


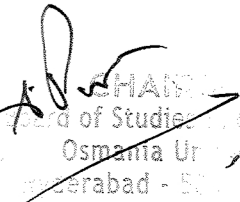
Sale of Goods Act, 1930 and Consumer Protection Act, 2019 Contract of Sale – Sale and Agreement to Sell Goods and Types. Conditions and Warranties Express and Implied. Caveat Emptor – Exceptions Transfer of Property – Meaning and Different Circumstances Unpaid

Seller – Meaning and His Rights of Consumer Protection Act, 2019 Concept of Consumer Goods – Services – Consumer Dispute Unfair Trade Practices Central Consumer Protection Authority (CCPA) Consumer Dispute Redressal Commissions (District, State, National) Monetary and Jurisdictional Limits Some Judgements Given Under This Act Procedure to File Complaint Under This Act.

  
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### **UNIT - III – Intellectual Property Rights (IPRs)**

Trademarks – Meaning – Definition – Registration Duration – Renewal – Infringement. Patents – Meaning – Definition – Inventions and Patents Existing Patentee – Transfer of Patent Rights. Copyright – Meaning – Definition – Rights of Copyright Owner Term of Copyright – Infringement Industrial Designs Act, 2000 – Meaning Trade Secrets and Geographical Indications (GI).

### **UNIT - IV – Management of Companies and Corporate Governance**

Directors – Qualifications – Disqualifications – Appointment – Removal – Important Duties and Liabilities of Directors. Independent Directors Corporate Governance and its Main Principles Corporate Social Responsibility (CSR) – CSR Committee Financial Aspects of CSR Meetings of Companies – Different Meetings Conditions applicable to make meetings valid Important terms like Notice, Proxy, Agenda, Quorum Minutes Book Ordinary Resolutions / Special Resolutions.

### **UNIT - V – Corporate Insolvency and Winding Up**

Meaning of Winding Up – Companies Act, 2013 Modes of Winding Up Winding up by Tribunal Revival of Sick/ Solvent Companies Fraud, Oppression, Removal of Name of the Company Winding up of Insolvent Companies Conditions and Procedures as per Companies Act, 2013 Bankruptcy Code, 2016 Compulsory winding up – NCLT Creditors' voluntary winding up Insolvency and Bankruptcy Code (IBC).

### **SUGGESTED READINGS:**

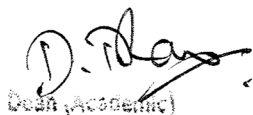
1. Company Law: ND Kapoor, Sultan Chand and Co.
2. Company Law: Rajashree. - HPH
3. Business Law - Kavitha Krishna, Himalaya Publishing House
4. Business Laws-Dr. B. K. Hussain, Nagalakshmi - PBP
5. Business Law: V K Sareen, Kalyani Publishers. I" Edition-2020
6. Company Law: Prof. G. Krishna Murthy, G. Kavitha, PBP
7. Company Law and Practice: GK Kapoor & Sanjay Dhamija, Taxmann Publication.
8. Business Law-Dr. Indrakanti Sekhar & Ms. Tulja Bhavani, SIA Publishing & Distributors Pvt. Ltd.
9. Company Law: Revised as per Companies Act-2013: KC Garg et al, Kalyani Publication.
10. Corporate Law: PPS Gogna, S Chand.
11. Business Law: D.S. Vital, S Chand
12. Company Law: Bagrial AK, Vikas Publishing House.
13. Business Law: B.K. Hussain, S. Gopal Rao, Professional books Publishers, Edition-2024, Year of Publication -2020.
14. Business Laws: Madhavi AVR, D. Bhaskara Lakshmi, SV Publication. First Edition-2025
15. Business Laws: S.P. Neehalika Bavya: S. Publishers.



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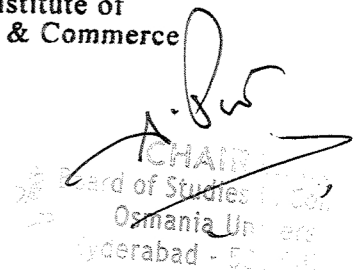
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SEMESTER-II

Paper MJR 203: DATA ANALYTICS ESSENTIALS

PAPER CODE: MJR 203:

Total Marks: 50T+20P+30I =100

THPW: 3T+4P; Credits: 5 ESED: 2 HRS

**Objective:** To make students learn Data Analytics Essentials

**Course Objectives:**

1. Introduce the fundamental concepts of data, its types, lifecycle, and modelling techniques.
2. Provide knowledge and skills in data profiling and cleaning for ensuring data quality.
3. Develop an understanding of ETL processes, master data management, and data quality frameworks.
4. Familiarize students with data warehousing concepts, techniques, and modern tools.
5. Connect data analytics practices to business strategy and value creation through case studies.

**Course Outcomes:**

1. Explain the types of data, data lifecycle, and various data modelling techniques.
2. Apply data profiling techniques to identify anomalies, outliers, and quality issues.
3. Perform data cleaning using appropriate methods, tools, and frameworks.
4. Demonstrate understanding of ETL processes, data quality dimensions, and master data management approaches.
5. Differentiate between databases, data warehouses, and data lakes; design basic warehousing solutions.

**UNIT I: UNDERSTANDING DATA (FOUNDATIONS)**

Introduction to Data: Data, Role of data in organizations, Importance of data-driven decision making; Types of Data: Structured, Semi-structured, Unstructured,(Examples & use cases); Data Lifecycle: Phases: Creation, Storage, Usage, Archival, Destruction; Data lifecycle management: Benefits & Best practices; Data Modelling: Types: Conceptual, Logical, Physical, Levels of abstraction & techniques, Tools for data modelling, Advantages of structured modelling

**UNIT II: DATA PROFILING AND CLEANING**

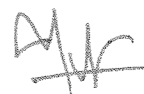
Data Profiling: Definition & importance, Scope: Exploratory vs Confirmatory profiling, Types of profiling, Profiling tasks; Benefits of profiling for analytics and governance; Tools of profiling, Data Cleaning, Common data issues, Cleaning activities, Standardization & normalization, Deduplication techniques, Outlier detection & treatment, Automation of cleaning processes; Benefits, Tools.: Talend, OpenRefine, Excel/Power Query, Python (Pandas, PyJanitor, Dedupe), R


  
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### UNIT III: ETL (EXTRACT, TRANSFORM, LOAD) AND DATA QUALITY

Data Quality: Dimensions, Benefits of data quality management, Tools and features for data quality monitoring; Master Data Management (MDM); ETL Process: Stages: Extraction, Transformation, Loading, Benefits of ETL for analytics, ETL vs ELT approaches (pros and cons), Criteria for choosing the right ETL tool; Tools in Practice: Talend Data Integration: parts, features, benefits, Microsoft SSIS: overview and use cases

### UNIT IV: DATA WAREHOUSING

Introduction: Need for data warehousing in organizations, Key characteristics of data warehouses Database vs Data Warehouse, Transactional vs Analytical systems, OLTP vs OLAP; Types of Data Storage Systems: Data warehouse, data lake, data mart, Hybrid approaches; Techniques & Tools: Data warehousing techniques (schema design, partitioning, indexing), Data cubes and in-memory analytics, Data integration techniques (batch, real-time, virtualization), Tools: Snowflake, Amazon Redshift, Google BigQuery, Apache Hive


### UNIT V: BUSINESS STRATEGY & VALUE OF ANALYTICS


Business Context in Analytics: Understanding organizational goals, Identifying business value from data, Role of analytics in strategic decision-making; Business Drivers: Linking analytics projects to corporate drivers, How drivers impact analytics adoption and strategic direction; Analytics Project Methodologies: CRISP-DM (phases and applications), Agile analytics approaches, Comparing methodologies for different business needs; Business Value Creation: Case studies across domains (finance, healthcare, retail, manufacturing); Measuring ROI from analytics projects, Examples of organizations leveraging analytics for competitive advantage


### SUGGESTED READING:

1. Data Science for Business, *Authors:* Foster Provost, Tom Fawcett, *Publisher:* O'Reilly Media, 2013
2. Data Warehousing in the Real World: A Practical Guide for Building Decision Support Systems, *Authors:* Sam Anahory, Dennis Murray, *Publisher:* Pearson Education, 1997
3. Mastering Data Modeling: A User-Driven Approach, *Authors:* John Carlis, Joseph Maguire, *Publisher:* Addison-Wesley, 2000,
4. Data Quality: The Accuracy Dimension, *Author:* Jack E. Olson, *Publisher:* Morgan Kaufmann (Elsevier), 2003
5. The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling, *Authors:* Ralph Kimball, Margy Ross, *Publisher:* Wiley, 2013 (3rd Edition)
6. Data Analytics Essentials: Dr. G.D. Rajani & V. Lakshmi Sudha, S.V. Publications. 1<sup>st</sup> Edition, 2025.
7. Data Analytics Essentials: Karipe Mahesh; S Publishers.
8. Data Analytics Modeling: M Yadigiri, Kalyani Publishers, 1<sup>st</sup> Edition, 2022.
9. Data Analytics Essentials: R Renuka, Veda Shree 2025.

  
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