

Corporation (IDC), State Financial corporation (SFCs), Commercial banks, Small Scale Industries Development Corporations(SSIDCs), Khadi and village Industries Commission (KVIC), National Small Industries Corporation (NSIC), Small Industries Development Bank of India(SIDBI).

Activities:

- Case Study Analysis: Analyze success stories of Indian entrepreneurs, highlighting traits and contributions to economic development.
- Idea Generation Workshop: Conduct a brainstorming session where students generate and present innovative business ideas using creativity techniques.
- Feasibility Report Preparation: Prepare a mini feasibility report for a selected business idea, covering technical and economic viability.
- Start-up Simulation Activity: Simulate startup operations including budgeting, recruitment, team leadership, and digital marketing strategies.
- Institutional Mapping Project: Create a presentation or chart showing the functions and support provided by key entrepreneurial institutions in India.

References:

1. Entrepreneurship Development by S.S. Khanka S. Chand & Company
2. Entrepreneurship by Robert D. Hisrich, Michael P. Peters, and Dean A. Shepherd, McGraw Hill
3. Small Scale Industries and Entrepreneurship by Vasant Desai Himalaya Publishing House
4. Entrepreneurship Development and Small Business Enterprises by Poornima M. Charantimath, Pearson Education
5. Essentials of Entrepreneurship and Small Business Management by Norman M. Scarborough, Pearson Education

SEMESTER-V

COURSE 12 B: BUSINESS INTELLIGENCE TOOLS AND DATA VISUALIZATION

Theory

Credits: 3

3 hrs/week

Course Objectives

This course is designed to:

- Develop student understanding of Business Intelligence (BI) principles and decision support systems.
- Train students in Advanced Excel for data analysis and visualization.
- Impart working knowledge of Tableau for real-time data visualization and dashboards.
- Equip learners with hands-on skills to analyze, interpret, and communicate data.
- Integrate BI tools for business forecasting, decision-making, and storytelling.

Course Outcomes

By the end of this course, the student will be able to:

CO1: Describe the framework, scope, and applications of Business Intelligence.

CO2: Analyze business datasets using advanced Excel functions like pivot tables, Power Query, and dashboards.

CO3: Visualize data interactively using Tableau and build industry-grade dashboards.

CO4: Apply BI tools to different business domains (Finance, Marketing, HR, Operations).

CO5: Present analytical findings to stakeholders using compelling data storytelling techniques.

SYLLABUS

Unit I: Introduction to Business Intelligence and Data-Driven Decisions

Meaning and Definition of Business Intelligence – Evolution of BI – Role in Managerial Decision Making – BI Architecture – Data Warehousing Basics – Data Marts – OLAP vs OLTP – BI Applications in Functional Areas – Business Metrics and KPIs – Data-Driven Culture.

Unit II: Business Intelligence with Advanced Excel – Part I

Introduction to Excel for BI – Data Types – Data Cleaning Using Flash Fill, Text Functions, Remove Duplicates – Logical Functions (IF, AND, OR, Nested IF) – Lookup Functions (VLOOKUP, HLOOKUP, XLOOKUP, INDEX & MATCH) – Sorting and Filtering – What-If Analysis – Data Validation.

Unit III: Business Intelligence with Advanced Excel – Part II

Pivot Tables and Pivot Charts – Slicers and Timelines – Power Query and Power Pivot – Creating Dashboards in Excel – Forecasting Using Excel – Goal Seek and Solver – Scenario Analysis – Macro Basics – KPI Tracking Templates – Interpreting Excel BI Outputs.

Unit IV: Business Intelligence with Tableau – Part I

Getting Started with Tableau – Connecting to Data Sources – Data Types and Dimensions/Measures – Simple Visualizations (Bar, Line, Pie, Map, Scatter) – Filters, Sorting, Grouping – Calculated Fields – Parameters – Basic Dashboard Creation – Story Points.

Unit V: Business Intelligence with Tableau – Part II

Interactive Dashboards – Dual-Axis Charts – Forecasting in Tableau – Trend and Reference Lines – Real-time Data Streams – Tableau Public vs Desktop – BI Case Studies Using Tableau

in Marketing, HR, and Finance – Exporting and Publishing Dashboards – Data Storytelling and Presentation Skills.

Student-Centric Activities

- Excel Dashboard Project: Students will create an interactive dashboard using Excel (Pivot Tables, Charts, Slicers, Power Query) to visualize sales, HR, or financial data for a fictional company.
- Tableau Data Storytelling Challenge: Students will import a dataset into Tableau (e.g., from Kaggle or Data.gov) and build a multi-chart visualization, interpreting trends and patterns for decision-making.
- Live Case Analysis Using BI Tools: Analyze a real-time business problem (e.g., declining sales in a region) using Excel analytics or Tableau, and present visual insights with actionable recommendations.
- Data Cleaning & Preparation Drill: Students will be given a messy dataset and must use Excel functions (Power Query, Text to Columns, Flash Fill, Remove Duplicates) to clean it for analysis.
- Group Presentation: BI in Industry: Each group researches and presents how business intelligence tools are used in sectors like healthcare, retail, banking, or logistics (with example dashboards).

Reference Books

1. Sharda, R., Delen, D., & Turban, E. (2020). *Business Intelligence, Analytics, and Data Science: A Managerial Perspective* (5th ed.). Pearson.
2. Murray, D. (2016). *Tableau Your Data!: Fast and Easy Visual Analysis with Tableau Software*. Wiley.
3. Kusleika, D. (2022). *Excel 2021 Power Programming with VBA*. Wiley.
4. Alexander, M., & Walkenbach, J. (2021). *Excel Dashboards and Reports* (4th ed.). Wiley.
5. McKinney, W. (2022). *Data Science for Business Intelligence with Excel and Tableau*. O'Reilly Media.

SEMESTER-V

COURSE 12 B: BUSINESS INTELLIGENCE TOOLS AND DATA VISUALIZATION

Practical

Credits: 1

2 hrs/week

To complement theoretical understanding, the following hands-on practical exercises are proposed:

1. **Interactive Excel Dashboards:**

- Create dashboards using Pivot Tables, Pivot Charts, Slicers, and Timelines to analyze multi-dimensional data (e.g., regional sales, HR turnover, product profitability).
 - Use Power Query for importing and transforming raw datasets.
- 2. Advanced Excel BI Simulations:**
- Practice What-If Analysis, Goal Seek, and Solver for business decision problems (e.g., breakeven analysis, loan repayment planning).
 - Build KPI templates and use conditional formatting for performance visualization.
- 3. Tableau Visualization Lab:**
- Connect Tableau to various data sources (Excel, CSV, Google Sheets).
 - Develop visualizations such as dual-axis charts, maps, and trend lines.
 - Build and publish dashboards using filters, parameters, and story points.
- 4. BI Mini Project:**
- Teams develop a BI project analyzing sectoral data (e.g., Retail, Banking, Healthcare) and present insights using Tableau dashboards and Excel analytics.
 - Include executive summary, KPIs tracked, and business recommendations.
- 5. Real-Time Case-Based BI Analysis:**
- Use a case scenario (e.g., employee attrition or customer churn) and apply both Excel and Tableau to derive insights.
 - Evaluate data cleanliness, visualization effectiveness, and decision relevance.

SEMESTER-V

COURSE 13 A: BUSINESS ANALYTICS USING EXCEL AND POWER BI

Theory

Credits: 3

3 hrs/week

Course Objectives

This course is designed to:

- Introduce the fundamentals of Business Analytics and data-driven decision-making.

- To train students in Excel-based analytics including data cleaning, transformation, and visualization.
- Equip learners with skills to use Power BI for real-time interactive data dashboards.
- Help students understand how to draw insights from data for business problem-solving.
- Develop analytical thinking and storytelling abilities using visual tools.

Course Outcomes

Upon successful completion, the student will be able to:

CO1: Understand the role of analytics in business problem-solving and strategic planning.

CO2: Use Excel for advanced analytics including pivot tables, statistical functions, and dashboards.

CO3: Transform, model, and visualize data using Power BI.

CO4: Interpret insights and present business intelligence reports using visual storytelling.

CO5: Apply analytics to domains such as Marketing, Finance, HR, and Operations.

SYLLABUS

Unit I: Introduction to Business Analytics

Definition and Importance of Business Analytics – Types: Descriptive, Predictive, Prescriptive – Analytics vs. Analysis – Business Analytics Life Cycle – Role of a Business Analyst – Data-Driven Decision Making – Data Sources – Case-based Applications.

Unit II: Data Analytics using Excel – Part I

Working with Raw Data – Data Cleaning & Structuring – Text Functions – Logical Functions (IF, AND, OR, IFERROR) – Lookup Functions (VLOOKUP, HLOOKUP, XLOOKUP, INDEX-MATCH) – Data Validation – Conditional Formatting – Named Ranges – Form Controls.

Unit III: Data Analytics using Excel – Part II

Pivot Tables and Charts – Slicers and Timelines – Power Query – Data Modeling with Power Pivot – What-if Analysis – Goal Seek, Solver – Statistical Tools in Excel – Excel Dashboards for KPI Tracking – Forecast Sheet – Exporting Reports.

Unit IV: Power BI – Data Loading and Modeling

Overview of Power BI Desktop and Power BI Service – Data Loading from Excel/CSV/Cloud – Data Transformation in Power Query Editor – Relationships and Data Modeling – Calculated Columns and Measures using DAX – Data Types and Hierarchies – Star Schema.

Unit V: Power BI – Visualization and Insights

Creating Interactive Visuals (Bar, Line, Pie, Cards, Maps, Gauge) – Filters and Slicers – Drill Down/Up – Tooltips and Bookmarks – Dashboard Design Principles – Publishing Reports to Power BI Service – Sharing and Collaborating – Case Study: Power BI Dashboard for Sales/Finance/HR Analytics.

Student-Centric Activities

- Mini-Project on Business Scenario Analysis: Students analyze a real or simulated business problem (e.g., sales performance, inventory control) using Excel functions (e.g., VLOOKUP, Pivot Tables, What-If Analysis) and visualize key metrics using Power BI dashboards.

- Data Cleaning Challenge in Excel: Students are given a raw dataset and asked to clean and organize the data using Power Query, Remove Duplicates, Data Validation, and other Excel tools, followed by importing into Power BI.
- Power BI Dashboard Competition: Students design an interactive dashboard in Power BI using slicers, cards, charts, and KPIs to present insights on a provided dataset (e.g., retail sales, customer feedback, or financials).
- Business Insights Presentation: Each student presents a data-driven story based on Excel/Power BI analysis, explaining trends, insights, and business implications to simulate stakeholder reporting.
- Group Activity: Excel vs Power BI Tools Debate: Student groups compare features and use-cases of Excel and Power BI for business analytics, culminating in a classroom debate with examples.

Reference Books

1. Winston, W. L. (2021). *Microsoft Excel Data Analysis and Business Modeling* (7th ed.). Microsoft Press.
2. Jablonski, D. (2022). *Data Analytics with Microsoft Excel: Building Data Models and Dashboards*. Apress.
3. Souder, M. (2023). *Beginning Power BI: A Practical Guide to Self-Service Data Analytics*. Apress.
4. Sharda, R., Delen, D., & Turban, E. (2020). *Business Intelligence, Analytics, and Data Science: A Managerial Perspective* (5th ed.). Pearson.
5. Padilla, J. (2023). *The Definitive Guide to DAX: Business Intelligence for Microsoft Power BI, SQL Server Analysis Services, and Excel* (3rd ed.). Microsoft Press.

SEMESTER-V

COURSE 13 A: BUSINESS ANALYTICS USING EXCEL AND POWER BI

Practical	Credits: 1	2 hrs/week
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The following lab-based practical exercises are designed to reinforce theoretical knowledge through hands-on learning:

1. Excel Analytics Lab

- **Data Cleaning & Transformation:**

- Clean messy business data using Flash Fill, Text to Columns, Remove Duplicates, and Data Validation.
- **Analytical Functions Practice:**
 - Apply IF, AND, OR, IFERROR, and nested formulas to solve business case questions.
 - Use lookup functions like VLOOKUP, HLOOKUP, XLOOKUP, INDEX & MATCH for dataset linkage.
- **Dashboards & Reports:**
 - Build a sales performance dashboard using PivotTables, PivotCharts, Slicers, and conditional formatting.
 - Perform scenario analysis using Goal Seek and Solver for forecasting or financial planning.

2. Power BI Fundamentals Lab

- **Data Import & Cleaning:**
 - Import sales/HR/finance datasets from Excel into Power BI.
 - Clean and transform data using Power Query Editor (e.g., remove nulls, split columns, change data types).
- **Data Modeling:**
 - Create relationships using Star Schema.
 - Create calculated columns and DAX measures (e.g., Total Sales, Profit Margin).

3. Power BI Visualization Projects

- **Build Interactive Dashboards:**
 - Visualize business metrics using cards, bar/line charts, maps, pie charts, slicers, and filters.
 - Apply drill-down, bookmarks, tooltips, and hierarchy features for layered insights.
- **Insight Reporting:**
 - Use dashboard output to prepare a brief business report summarizing key patterns and suggested decisions.

4. Business Case Study Project

- Mini-project on a domain of choice (Marketing/HR/Finance/Operations):
 - Analyze data in Excel, transform in Power BI, and visualize outcomes.

- Present insights using storytelling techniques to simulate real-world stakeholder presentations.

5. Skill-Based Student Activities

- Weekly peer reviews on dashboard aesthetics, insights, and clarity.
- Weekly speed challenge on formula writing, data import, or chart creation.
- Mock client reporting using data-driven slides built from Excel/Power BI.

SEMESTER-V

COURSE 13 B: ACCOUNTING INFORMATION SYSTEM

Theory

Credits: 3

3 hrs/week

Course Objectives

This course is designed to:

- Provide conceptual and applied understanding of Accounting Information Systems (AIS) in a computerized environment.
- Enable students to use Microsoft Excel for recording, processing, and reporting accounting data.