

COURSE TITLE	FINTECH BUSINESS INTELLIGENCE
COURSE CODE	05MF0301
COURSE CREDITS	4

Objective:

- 1 To understand the fundamentals of Business Intelligence (BI) and its applications in the FinTech industry.
- 2 To develop proficiency in Excel and Power BI for financial data analysis and visualization.
- 3 To implement data-driven decision-making strategies for risk assessment, fraud detection, and investment analysis.
- 4 To apply BI techniques for real-world financial applications, including credit scoring and market trend analysis.

Course Outcomes: After completion of this course, student will be able to:

- 1 Demonstrate knowledge of Business Intelligence concepts and their role in financial decision-making.
- 2 Apply Excel and Power BI tools to analyze, visualize, and interpret financial data effectively.
- 3 Develop automated financial reporting solutions and predictive models for investment and risk assessment.
- 4 Implement BI techniques to solve real-world financial challenges, such as fraud detection and portfolio optimization.

Pre-requisite of course:Basic knowledge of Visualization

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	Introduction to FinTech Business Intelligence Basics of FinTech BI, Data Warehousing for Finance , Financial Reporting Techniques, Importance of Data Visualization in Finance, KPI Metrics for Financial Performance, Regulatory Compliance in BI	8
2	Excel for Financial Analytics Advanced Excel Formulas for Finance, Pivot Tables and Financial Modeling, Macros and VBA for Financial Automation, Loan and Investment Calculation Models, Scenario Analysis in Excel, Risk Assessment using Excel	10

Contents : Unit	Topics	Contact Hours
3	Power BI for Financial Data Visualization Data Import and Transformation, DAX Functions for Finance, Creating Financial Dashboards, Time Series Analysis in Power BI, Forecasting Techniques , Case Study: Financial Statement Analysis	12
4	Real-world Financial BI Applications Fraud Detection using BI, Customer Segmentation in Banking, Performance Tracking in Investment Portfolios, Credit Scoring Models, Stock Market Trends Visualization, Automated Reporting in FinTech	15
Total Hours		45

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Unit 1 Financial Data Collection & Warehousing – Set up a financial data warehouse and import banking datasets, KPI Calculation & Visualization – Create key performance indicators (KPIs) using Excel/Power BI, Regulatory Compliance Analysis – Develop a compliance dashboard showcasing risk levels.	15
2	Unit 2 Pivot Table & Financial Modeling – Analyze financial data using pivot tables and build a financial model, Loan and Investment Analysis – Use Excel formulas to calculate loan amortization and investment returns, Automating Financial Reports – Create an Excel macro for generating automated financial reports.	15
3	Unit 3 Creating Financial Dashboards – Build an interactive Power BI dashboard for visualizing financial trends. Time Series Analysis – Perform a time-series analysis on stock market data using Power BI. DAX-based Financial Metrics – Use DAX functions to calculate ROI, profit margins, and financial ratios.	15
4	Unit 4 Fraud Detection using BI Tools – Analyze transaction datasets to detect fraudulent patterns, Customer Segmentation Analysis – Use clustering techniques in BI to segment banking customers. Stock Market Trends Visualization – Visualize real-time stock market trends using Power BI.	15
Total Hours		60

Textbook :

- 1 FinTech: The New DNA of Financial Services , Pranay Gupta & T. Mandy Tham, De Gruyter, 2018
- 2 Business Intelligence Guidebook: From Data Integration to Analytics, Rick Sherman, Morgan Kaufmann, 2014

Textbook :

- 3 Financial Modeling Using Excel and VBA , Chandan Sengupta, John Wiley & Sons, 2004

References:

- 1 Microsoft Power BI Cookbook, Microsoft Power BI Cookbook, Brett Powell, Packt Publishing, 2021

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	20.00	25.00	25.00	10.00	10.00

Instructional Method:

- 1 Practical
- 2 Boardwork
- 3 PPT

Supplementary Resources:

- 1 <https://www.microsoft.com/en-us/power-platform/products/power-bi>
- 2 <https://learn.microsoft.com/en-us/office365/servicedescriptions/office-online-service-description/excel-online>
- 3 <https://support.microsoft.com/en-us/excel>
- 4 <https://learn.microsoft.com/en-us/power-bi/fundamentals/power-bi-overview>