COURSE NAME:	Business Intelligence and Analytics
TOTAL DURATION:	45 Hrs
MODE OF DELIVERY	PHYSICAL CLASSROOM TRAINING AT RESPECTIVE COLLEGES
TRAINER TO STUDENT RATIO:	1:50
TOTAL MARKS:	75

Table 1	
OVERALL COURSE OBJECTIVE:	1. Equip participants with the ability to design and implement comprehensive Business Intelligence (BI) solutions to address real-world business challenges. 2. Develop proficiency in integrating, cleaning, and managing data from diverse sources to ensure data quality and consistency for analysis. 3. Master advanced data visualization techniques and interactive dashboard creation to effectively communicate business insights. 4. Enable participants to apply predictive analytics and statistical modelling for strategic decision-making and forecasting. 5. Enhance participants' capability to deliver actionable insights through the proficient use of BI tools like Power BI and Tableau.

| **LEARNING OUTCOME:** | 1. Integrate and transform raw data into actionable insights using ETL (Extract, Transform, Load) processes and data warehousing techniques.
 2. Create and deploy advanced dashboards and visualizations to communicate business metrics and trends effectively.
 3. Apply predictive analytics and statistical models to drive strategic decision-making and solve business problems.
 4. Develop comprehensive BI solutions that align with organizational goals and demonstrate advanced technical skills. |

		5. Present data-driven insights clearly and persuasively to stakeholders, demonstrating strategic alignment with business objectives.

TABLE 2: MODULE WISE COURSE CONTENT AND OUTCOME				
SL.NO	**MODULE NAME**	**MODULE CONTENT**	**MODULE LEARNING OUTCOME**	**DURATION (HRS)**
1	Foundations of Business Intelligence and Data Preparation	- Comprehensive overview of BI concepts, applications, and importance in strategic decision-making. - Techniques for collecting, integrating, and managing data from diverse sources. - Data warehousing and ETL (Extract, Transform, Load) processes.	Integrate and transform raw data into actionable insights using ETL processes and data warehousing techniques.	10
2	Advanced Tools and Techniques in Business Intelligence	- Mastery of BI tools such as Power BI and Tableau for data analysis and visualization. - Advanced visualization techniques, including geospatial mapping, heatmaps, and KPI dashboards.	Create and deploy advanced dashboards and visualizations to communicate business metrics and trends effectively.	10

		- Best practices for creating dynamic, interactive dashboards.		
3	Exploratory Data Analysis and Predictive Analytics	- Exploratory Data Analysis (EDA) techniques: summarizing, visualizing, and interpreting data. - Statistical models and machine learning applications for predictive analytics. - Time-series forecasting and advanced data trend analysis.	Apply predictive analytics and statistical models to drive strategic decision-making and solve business problems.	10
4	BI Strategy Implementation and Governance	- Designing and deploying BI projects aligned with organizational goals. - Managing data governance, quality, and ROI measurement in BI solutions. - Implementing BI governance frameworks to ensure strategic alignment and scalability.	Develop comprehensive BI solutions that align with organizational goals and demonstrate advanced technical skills.	8
5	Real-World BI Applications	- Real-world case studies and challenges in BI implementations.	Synthesize learned concepts to design and	7

		- Executing an end-to-end BI project: data collection, analysis, visualization, and reporting. - Presenting actionable insights and strategic recommendations to stakeholders.	present BI solutions aligned with business objectives to stakeholders.	

TABLE 3: OVERALL COURSE LEARNING OUTCOME ASSESSMENT CRITERIA AND USE CASES			
LEARNING OUTCOME	**ASSESSMENT CRITERIA**	**Performance Criteria**	**USE CASES**
BI Tools Proficiency: Create and deploy advanced dashboards and visualizations to communicate business metrics and trends effectively.	Ability to use BI tools effectively	Demonstrate mastery in creating advanced, interactive dashboards and visualizations using tools like Power BI and Tableau, tailored for diverse business scenario	**Use Case 1:** Create interactive dashboards in Power BI. **Use Case 2:** Develop data visualizations using Tableau.
Data Warehousing Implementation: Integrate and transform raw data into actionable insights using ETL processes and data warehousing techniques.	Design and development of data warehouses	Design optimized data warehouse schemas and implement robust ETL processes to ensure data integrity and high performance	**Use Case 1:** Design a data warehouse schema for a retail company. **Use Case 2:** Implement ETL processes to consolidate data from multiple sources.

Advanced Analytics Application: Apply predictive analytics and statistical models to drive strategic decision-making and solve business problems.	Utilization of analytics techniques for insights	Apply predictive analytics and data mining techniques to derive strategic insights and support data-driven decision-making.	**Use Case 1:** Perform predictive analytics to forecast sales. **Use Case 2:** Use data mining to identify customer segments.
BI Solution Deployment: Develop comprehensive BI solutions that align with organizational goals and demonstrate advanced technical skills.	Successful implementation and integration	Deploy comprehensive BI solutions integrated with existing systems to address organizational goals and deliver measurable impact.	**Use Case 1:** Deploy a BI solution for financial reporting. **Use Case 2:** Integrate BI tools with existing ERP systems.

TABLE 4: LIST OF FINAL PROJECTS (PROJECTS THAT COMPREHENSIVELY COVER ALL THE LEARNING OUTCOME)	
SL.NO	**FINAL PROJECT**
1	Design and implement a BI solution for sales analysis.
2	Create a data warehouse for a healthcare organization.
3	Develop interactive dashboards for supply chain management.
4	Implement predictive analytics to improve customer retention.
5	Analyze financial data to support investment decisions.

6	Build a BI system for HR analytics and workforce planning.
7	Conduct a BI project to optimize marketing campaigns.
8	Integrate BI tools with CRM systems for enhanced insights.
9	Develop a KPI dashboard for executive decision-making.
10	Implement data quality management practices in BI.
11	Create a BI strategy plan for an organization.
12	Analyze retail data to optimize inventory levels.
13	Develop a real-time BI solution using streaming data.
14	Implement ETL processes for data migration projects.
15	Conduct a case study on a successful BI implementation.
16	Use geospatial data analysis for location-based insights.
17	Develop a BI application for project management analytics.
18	Implement self-service BI tools for end-users.
19	Analyze social media data for brand sentiment analysis.
20	Create a BI governance framework for data management.

TABLE 5: COURSE ASSESSMENT RUBRICS (TOTAL MARKS: 75)					
ASSESSMENT CRITERIA	Learning Outcome	Fair (1–5)	Good (6–10)	Excellent (11–15)	TOTAL MARKS
BI Tools	Analyze	Demonstrat	Creates	Designs	15

Proficiency	and design dashboards and visualizations using BI tools like Power BI and Tableau.	es limited ability to apply BI tools; creates rudimentary dashboards with minimal interactivity.	functional dashboards with moderate interactivity, using BI tools effectively but with occasional inefficiencies.	and evaluates complex dashboards, integrating advanced features and achieving high-level interactivity with mastery of BI tools.	
Data Warehousing and ETL Implementation	Design, evaluate, and optimize data warehouses and implement robust ETL processes.	Struggles with integrating and evaluating data sources; incomplete or poorly executed warehousing and ETL processes.	Analyses and organizes data effectively; implements ETL processes to consolidate data, though with some inefficiencies or errors.	Designs and implements optimized, high-performance data warehouses; seamlessly integrates diverse data sources and robust ETL	15

				processes.	
Application of Predictive Analytics	Create, evaluate, and interpret predictive models to uncover trends and provide actionable insights.	Uses basic predictive models with limited insights; struggles to interpret trends effectively.	Applies predictive analytics techniques effectively; analyses data to uncover trends and produce actionable insights with moderate accuracy.	Creates advanced predictive models; evaluates data mining techniques to deliver highly accurate, actionable insights aligned with decision-making goals.	15
BI Solution Deployment and Integration	Design and deploy integrated BI solutions aligned with business strategies and scalable objectives.	Delivers a partial BI solution with gaps in integration and limited evaluation of business needs.	Deploys functional BI solutions that address most business objectives; demonstrates reasonable scalability	Designs, deploys, and evaluates fully integrated BI solutions; provides innovative solutions that align	15

			and alignment with goals.	with business strategies and optimize processes.	
Communication of Insights	Communicate actionable insights effectively using visualizations to support strategic business decisions.	Communicates findings with minimal clarity; visualizations lack strategic alignment and fail to convey insights effectively.	Analyses and communicates business insights clearly; uses visualizations to illustrate findings, though with limited strategic alignment.	Synthesizes and evaluates actionable insights; uses advanced visualizations to support strategic business decisions and conveys findings effectively.	15