DATA ANALYTICS USING TABLEAU AND SIEMENS INSIGHT HUB

Course Objective: **45 Periods**

- The objective of this course is to equip participants with the knowledge and skills required to utilize Tableau and Siemens Insight Hub for data analytics.
- Participants will learn how to leverage the capabilities of Tableau and Insight Hub to extract valuable insights from data, visualize data effectively, and make data-driven decisions.
- By the end of the course, participants will be proficient in using these tools to analyze and present data in a meaningful way.

Course Content:

Unit 1: Introduction to Data Analytics and Tableau

Introduction to data analytics and its importance in decision-making- Overview of Tableau and its features- Understanding data visualization principles- Connecting to data sources in Tableau

Unit 2: Tableau Basics

Exploring the Tableau interface and workspace- Working with dimensions and measures- Creating basic visualizations (bar charts, line charts, scatter plots, etc.)- Sorting, filtering, and grouping data in Tableau

Unit 3: Advanced Data Analytics with Tableau

Using calculated fields and table calculations- Combining data from multiple sources- Implementing advanced visualizations (heat maps, tree maps, etc.)- Applying filters, parameters, and sets in Tableau

Unit 4: Siemens Insight Hub Integration

Introduction to Siemens Insight Hub for data analytics- Connecting Tableau with Siemens Insight Hub- Leveraging Insight Hub features for advanced analytics- Creating interactive dashboards and reports using Insight Hub and Tableau

Unit 5: Advanced Topics in Data Analytics

Utilizing advanced features in Tableau (data blending, forecasting, etc.)- Incorporating statistical analysis in Tableau- Implementing data storytelling techniques- best practices for data visualization and analysis

Course Outcomes:

1. Understand the fundamentals of data analytics and its significance in decision-making processes.

2. Effectively utilize Tableau for data visualization and analysis.

3. Integrate Siemens Insight Hub with Tableau for advanced data analytics.

4. Create interactive dashboards and reports using Tableau and Insight Hub.

5. Apply advanced analytics techniques, such as calculated fields, data blending, and statistical analysis.

6. Present data insights in a compelling and meaningful manner using data storytelling principles.

References:

- Tableau Online Help Documentation: https://help.tableau.com/
- Siemens Insight Hub Documentation: [Provide relevant documentation and user guides from Siemens]

Software and Hardwar Requirements:

- Tableau and Siemens Insight Hub
- Computer or Laptop
- Processor: Intel Core i5 or equivalent (or higher).
- RAM: 8 GB or higher.

20 industry use cases:

1. Retail:

Task 1: Analyze sales data to identify top-selling products and optimize inventory levels.

Task 2: Segment customers based on purchasing behaviour to personalize marketing campaigns.

Task 3: Analyze seasonal trends to forecast demand and plan promotions.

Task 4: Identify underperforming product categories and recommend strategies for improvement.

Task 5: Analyze customer feedback data to identify areas for improvement in customer experience.

2. Healthcare:

Task 1: Analyze patient data to identify patterns and risk factors for specific diseases.

Task 2: Optimize resource allocation by analysing patient flow and hospital occupancy rates.

Task 3: Analyze treatment outcomes to identify best practices and improve healthcare quality.

Task 4: Analyze patient demographics to develop targeted health awareness campaigns.

Task 5: Identify opportunities for cost reduction and efficiency improvement in healthcare operations.

3. Finance:

Task 1: Analyze financial data to identify patterns and anomalies for fraud detection.

Task 2: Manage risk by analysing historical data and market trends.

Task 3: Optimize investment portfolios by analysing asset performance and market conditions.

Task 4: Conduct financial forecasting and scenario analysis for strategic planning.

Task 5: Identify cost-saving opportunities and optimize financial processes.

4. Manufacturing:

Task 1: Monitor production data to identify bottlenecks and optimize production processes.

Task 2: Analyze quality control data to improve product quality and reduce defects.

Task 3: Predict maintenance needs by analysing sensor data from production equipment.

Task 4: Optimize supply chain by analysing demand patterns and inventory levels.

Task 5: Analyze energy consumption data to identify areas for efficiency improvement.

5. Marketing:

Task 1: Analyze customer data to develop targeted marketing campaigns.

Task 2: Optimize advertising spend by analysing campaign performance and ROI.

Task 3: Measure the effectiveness of marketing campaigns through data analysis.

Task 4: Conduct market segmentation analysis to identify target customer segments.

Task 5: Analyze customer sentiment and feedback data to improve marketing strategies.

6. Energy:

Task 1: Analyze energy consumption data to identify areas of inefficiency.

Task 2: Optimize energy usage by analysing demand patterns and peak load management.

Task 3: Conduct predictive maintenance by analysing sensor data from energy infrastructure.

Task 4: Identify opportunities for renewable energy integration and cost savings.

Task 5: Analyze carbon footprint data to develop sustainability initiatives and reduce environmental impact.

7. Transportation and Logistics:

Task 1: Analyze supply chain data to optimize routes and improve delivery times.

Task 2: Optimize transportation costs by analysing shipping data and carrier performance.

Task 3: Conduct demand forecasting to optimize inventory and procurement processes.

Task 4: Analyze customer feedback data to improve service quality and customer satisfaction.

Task 5: Optimize warehouse operations by analysing inventory levels and storage utilization.

8. Telecommunications:

Task 1: Analyze customer usage data to improve service offerings and personalized recommendations.

Task 2: Identify network issues and optimize network performance through data analysis.

Task 3: Analyze customer churn patterns and develop retention strategies.

Task 4: Optimize pricing strategies by analysing customer segments and market trends.

Task 5: Analyze customer feedback data to enhance customer support services.

9. Education:

Task 1: Analyze student performance data to identify areas of improvement and personalize learning experiences.

Task 2: Optimize educational resource allocation by analysing student enrolment and demand patterns.

Task 3: Analyze assessment data to measure learning outcomes and identify effective teaching strategies.

Task 4: Conduct predictive analytics to identify students at risk of dropout and implement intervention programs.

Task 5: Analyze feedback data from students and teachers to improve educational quality and curriculum design.

10. Hospitality:

Task 1: Analyze guest data to personalize customer experiences and tailor service offerings.

Task 2: Optimize pricing strategies by analysing demand patterns and market trends.

Task 3: Analyze customer feedback data to improve service quality and customer satisfaction.

Task 4: Conduct revenue management analysis to optimize room rates and occupancy levels.

Task 5: Identify opportunities for cost reduction and operational efficiency improvement in hospitality operations.

11.Insurance:

Task 1: Analyze claims data to identify fraudulent activities and implement fraud detection measures.

Task 2: Assess risks by analysing historical data and developing risk models.

Task 3: Optimize underwriting processes by analysing customer data and risk factors.

Task 4: Conduct predictive modeling to estimate future claims and manage reserves.

Task 5: Analyze customer data to personalize insurance offerings and improve customer retention.

12.Government:

Task 1: Analyze public data to identify trends and patterns for informed policy decisions.

Task 2: Conduct sentiment analysis on social media data to gauge public opinion.

Task 3: Optimize public services by analysing data on service usage and citizen feedback.

Task 4: Identify areas for cost savings and operational efficiency improvement in government processes.

Task 5: Analyze demographic data to inform resource allocation and urban planning initiatives.

13.Sports:

Task 1: Analyze player performance data to optimize team strategies and game plans.

Task 2: Identify talent through data analysis and player scouting.

Task 3: Conduct predictive analytics to estimate player performance and injury risks.

Task 4: Analyze fan data and preferences to enhance fan engagement and marketing efforts.

Task 5: Optimize player development programs through data-driven training and performance analysis.

14.E-commerce:

Task 1: Analyze customer browsing and purchasing behavior to personalize product recommendations.

Task 2: Optimize pricing strategies through competitor analysis and market trends.

Task 3: Conduct A/B testing and analyze conversion rates to improve website usability and customer experience.

Task 4: Analyze customer reviews and feedback data to enhance product offerings and customer satisfaction.

Task 5: Identify opportunities for cross-selling and upselling through customer segmentation and product affinity analysis.

15.Real Estate:

Task 1: Analyze market data to identify investment opportunities and predict property values.

Task 2: Optimize property management by analysing rental yield and occupancy rates.

Task 3: Conduct location analysis to identify areas for real estate development and investment.

Task 4: Analyze customer data and preferences to personalize property recommendations.

Task 5: Identify trends in the real estate market and provide market insights for strategic decision-making.

16.Non-profit:

Task 1: Analyze donor data to optimize fundraising efforts and donor engagement.

Task 2: Measure the impact of programs and initiatives through data analysis.

Task 3: Conduct donor segmentation analysis to personalize communication and outreach strategies.

Task 4: Optimize resource allocation by analysing donor preferences and funding patterns.

Task 5: Analyze volunteer data and engagement metrics to improve volunteer management and retention.

17. Human Resources:

Task 1: Analyze employee data to identify talent gaps and optimize recruitment strategies.

Task 2: Conduct predictive analytics to identify factors contributing to employee turnover.

Task 3: Analyze performance data to assess employee productivity and training needs.

Task 4: Optimize compensation and benefits packages through data analysis and benchmarking.

Task 5: Analyze employee feedback data to improve employee satisfaction and engagement.

18. Supply Chain Management:

Task 1: Analyze logistics and inventory data to optimize supply chain operations and reduce costs.

Task 2: Identify bottlenecks and inefficiencies in the supply chain through data analysis.

Task 3: Optimize inventory levels and demand forecasting to improve order fulfilment.

Task 4: Analyze supplier performance data to identify strategic sourcing opportunities.

Task 5: Conduct supplier risk analysis to ensure supply chain resilience and continuity.

19. Environmental Sustainability:

Task 1: Analyze environmental data to identify areas of improvement and optimize resource usage.

Task 2: Conduct energy consumption analysis to identify opportunities for energy efficiency.

Task 3: Analyze waste management data to minimize environmental impact and promote recycling initiatives.

Task 4: Measure and track key sustainability metrics to monitor progress towards environmental goals.

Task 5: Conduct lifecycle analysis to assess the environmental impact of products and processes.

20.Entertainment and Media:

Task 1: Analyze audience data to personalize content recommendations and improve user engagement.

Task 2: Optimize advertising strategies by analysing audience demographics and preferences.

Task 3: Conduct sentiment analysis on social media data to gauge audience reception and feedback.

Task 4: Analyze viewership data to optimize programming schedules and content acquisition decisions.

Task 5: Measure audience engagement through data analysis of user interactions and viewing patterns.