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Department of Industrial IOT

Workshop on "Data analytics and Visualization using Microsoft Power BI"

The department of **Industrial IOT** organised a **Workshop** titled **Data analytics and Visualization using Microsoft Power BI** on **25-05-2026 and** at **10.30AM**, in **Room No 158**.

The expert speaker for the training program was Mr. Ranjith T R, Assistant Manager – Data Analytics at Hitachi India Pvt Ltd., Bengaluru, India. A total of 30 students of 4^{th} and 6^{th} semester from the Department of Industrial IOT had attended the training program.

Objectives of the Event

The workshop will unlock the power of Data analytics and Visualization using Microsoft Power BI. The objectives of the event are:

- Learn to transform raw data into actionable insights.
- Create interactive dashboards and reports with Power BI, and Master data modeling, DAX, and visualization best practices.
- The sessions will cover Power BI Fundamentals, Data Modeling DAX, Data Visualization, and Real-World Case Studies.

Event Overview

The event started at 10:30 AM, with 30 students participating. For the students, this was an opportunity to apply their technical knowledge in practical situations and thereby learn soft skills such as solo design, perseverance, and team leadership.

The resource person started the forenoon session with a first understanding of:

-Introduction to Data Analytics,

-Structured vs Unstructured Data,

-Data in Motion Vs Data at Rest

-IoT data analytics challenges

Data analysis is the amount of data processed most efficiently. Depending on how data is categorised, various data analytics tools and processing methods can be applied. The two important categorisations from an IoT perspective are whether the data is structured or unstructured and whether it is in motion or at rest. The resource person discussed structured data, in which the data follows a model or schema that defines how it is represented or organised, meaning it fits well with a traditional relational database. Also, he discussed examples of data types such as text, speech, images, and videos in a real-time environment. He then discussed the various challenges, such as Scaling Problems (performance issues, high cost to resolve, requirement of meed more hardware, architectural changes) and Volatility of Data (schema changes).

The afternoon session started with the following topics:

-Data Preprocessing and Cleaning,

-Descriptive Analytics,

-Predictive Analytics,

-Prescriptive Analytics

Mr. Ranjith T R shared his knowledge of how data analytics helps one make informed decisions by turning raw data into actionable insights. This hands-on workshop is designed to equip participants with practical skills to transform raw data into interactive dashboards and actionable insights using Microsoft Power BI. The session bridges the gap between data collection and decision-making by focusing on best practices for visualization, data modeling, and data storytelling. Students in engineering, management, and commerce, working professionals, analysts, and business managers, faculty and researchers working with datasets and anyone looking to upskill in business intelligence and data visualization can learn to: Connect Transform Data: Import data from Excel, CSV, SQL, and web sources, and clean it using Power Query Editor Build Data Models: Create relationships, DAX measures, and calculated columns for robust analysis Design Interactive Dashboards: Develop

compelling visuals like bar charts, maps, slicers, and KPI cards Share Insights: Publish reports to Power BI Service and set up auto-refresh for real-time monitoring Apply Best Practices: Follow design principles for clear, impactful, and business-ready reports

He gave a clear overview of Hugging Face, which provides access to thousands of pre-trained models via Model Hub for tasks such as speech recognition, text classification, text generation, text summarisation, question answering, image generation and more. The workshop ended at 4.30 PM.

Figure 1: Mr. Ranjith T R teaching the students on the basics of Data Analytics

Figure 2.a: Resource person helping the students with hands-on experience

Figure 2.b: Students actively taking part in a hands-on session

OUTCOMES

The students will be able to:

Create and customize reports and dashboards.

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Understand data transformation and DAX formulas.

Connect with peers and industry experts.

Apply Power BI to business scenarios.

Hands-on experience with Power BI for data analytics and visualization.

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