**22ANP201: Data Visualization using Power-BI**

| **Course Code** | **22ANP201** | **Course Delivery Method** | Classroom / Blended Mode |
|---|---|---|---|
| **Credits** | 2 | **CIA Marks** | 20 |
| **No. of Lecture Hours / Week** | 4 | **Semester End Exam Marks** | 30 |
| **Total Number of Lecture Hours** | 60 | **Total Marks** | 50 |
| **Year of Introduction : 2024-25** | Year of offering: 2024 | **Year of Revision: NIL** | Percentage of Revision: NIL |
| **Course Focus** | ***Employability*** | **E**ntrepreneurship | **S**kill Development. |

**Course Outcomes:**

By the end of the course, students will be able to

CO-1 Understand Power BI concepts, BI reports, dashboards, and Power BI DAX commands and functions.

CO-2 Gain a competitive edge in creating customized visuals and deliver a reliable analysis for vast amount of data using Power BI.

CO-3 Learn how to clean, experiment, fix, prepare and present data quickly and easily.

CO-4 Create analysis dash boards for all functional areas of organization.

CO-5 Design the relationships in your data model and learn data visualization best practices

| **Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (H-High, M-Medium, L-Low)** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** |
| **22ANP201** | **CO1** | 3 | | | | | | 2 |
| | **CO2** | 2 | | 3 | | | | |
| | **CO3** | 2 | | | | | | 3 |
| | **CO4** | 3 | 2 | | | | | |
| | **CO5** | 2 | | | | | | 3 |

| Syllabus | | |
|---|---|---|
| **Unit** | **Learning Units** | **Lab Hours** |
| I | **Introduction Power Pivot**<br>Introduction of Pivot , Use Power Pivot , xVelocity in, memory analytics engine , Exploring the Data Model Management interface , Analyzing data using a pivot table | 12 |
| II | **Data Operations**<br>Working with Data , Import data from relational databases , Import data from text files , Import data from a data feed , Import data from an OLAP cube | 12 |
| III | **Power Pivot & Data Operations**<br>Data Munging , Discover and import data from various sources , Cleanse data , Merge, shape, and filter data , Group and aggregate data , Insert calculated columns. | 12 |
| IV | **Power Pivot model**<br>Creating data Model , Explain what a data model is , Create relationships between tables in the model , Create and use a star schema , Understand when and how to denormalize the data , Create and use linked tables | 12 |
| V | **Power BI**<br>Power BI environment , Getting, cleaning, and shaping data , Creating table relationships , Adding calculations and measures , Incorporating time, based analysis | 12 |

**Reference Books :**


1. Mastering Microsoft Power BI" by Brett Powell
2. "The Definitive Guide to DAX: Business intelligence for Microsoft Power BI, SQL Server Analysis Services, and Excel" by Marco Russo and Alberto Ferrari
3. "Power BI Step-by-Step Part 1" and "Power BI Step-by-Step Part 2" by Grant Gamble
4. "Dashboarding and Reporting with Power BI" by Árpád Zoltán Adam
5. "Pro Power BI Desktop" by Adam Aspin


**List of Experiments**

1. Write the Procedure for preparing a Pivot in Excel and prepare a Dashboard using sample marketing data.
    a. Offline Data and online data
    b. Online to Online using Google Forms.

2. Installation of Power BI and its procedure
3. Explain the procedure in importing various format files in Power BI, write its observations
4. Power BI Data Models (Schemas in Power BI)
5. How to edit data in power BI when data is Exported use few data cleaning techniques (Munging)
6. Advance Data Cleaning techniques, Data Munging and Data collection and collaboration techniques.
7. Write the procedure in building an association (Power Query) identify various schemas in Power BI
8. Data Visualization (charts for a sample data) constructions and analysis
9. Step in preparing a dashboard for Sales , HR and Finance Data.
10. Constructing Quick Measures and Dax formulas

## Evaluation Pattern for Laboratory Courses

**(A) Semester –End Examination (Practical Examination) – Max Marks: 35**

**Evaluation Procedure**

| | |
|---|---|
| **(i) Experiments (Exam & Execution)** | **25 Marks** |
| **(ii) Viva** | **10 Marks** |

**(B) Continuous Assessment** **15 MARKS**

15 marks for the continuous assessment (Day to day work in the laboratory shall be evaluated for 15 marks by the concerned laboratory teacher based on the regularity/ record/viva). Laboratory teachers are mandated to ensure that every student completes 80%-90% of the lab assessments.

**TOTAL: (A) + (B) = 50 Marks**

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