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PINEAPPLE EDUCATION

Innovation, Research, Academic & Training Institute with Placement Support

(Mentored by Lawyers, Chartered Accountants, IT Professionals & Academicians)

21 Years

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IIMMI

INTERNATIONAL INSTITUTE OF
MANAGEMENT, MEDIA & IT

PROFESSIONAL DATA ANALYTICS PROGRAM | CAREER-FOCUSED CURRICULUM

Learning Roadmap

A visual path through the complete 10-module curriculum

7-8 Months

Program Duration

10 Modules

Complete Curriculum

Projects + Career Prep

Applied Learning

01

Computer Fundamentals & Career Orientation

Foundation

02

Microsoft Excel (Basic to Advanced)

Analytics Tooling

03

SQL (Beginner to Advanced)

Databases & Querying

04

Python for Data Analytics

Programming & Analysis

05

Statistics

Statistical Foundations

06

Power BI

Business Intelligence

07

Tableau (Optional)

Data Visualization

08

Real-World Projects

Applied Practice

09

Interview Preparation

Career Readiness

10

Capstone Project

End-to-End Delivery

MODULE 01

Computer Fundamentals & Career Orientation

01

Foundation-level orientation to data analytics, essential computing concepts, software setup, and career readiness.

Topics Covered

- Introduction to Data Analytics
- Data, Information, and Business Intelligence
- Data Analyst Role and Career Path
- Software Development Life Cycle (SDLC) and Data Life Cycle
- Types and Categories of Data
- Common Data File Formats (CSV, Excel, JSON, XML, Parquet)
- Software Installation and Environment Setup

Software to Install

- Microsoft Excel
- Python
- Power BI
- MySQL or PostgreSQL
- Visual Studio Code
- Git and GitHub

Assignment

- Install and verify all required software
- Create and configure a GitHub account
- Download and organize practice datasets from Kaggle

MODULE 02

Microsoft Excel (Basic to Advanced)

02

Comprehensive spreadsheet analysis, formula development, data preparation, pivot reporting, and dashboard-oriented Excel skills.

Part 1: Excel Basics

- Excel Interface
- Workbook and Worksheet Management
- Rows and Columns
- Data Entry
- Formatting
- Cell Referencing
- Relative Referencing
- Absolute Referencing
- Mixed Referencing
- Number Formats
- Fonts and Alignment
- Borders
- Fill Series
- Freeze Panes
- Hide and Unhide
- Page Layout and Printing

Part 2: Basic Formulas

- SUM
- AVERAGE
- COUNT
- COUNTA
- MIN
- MAX
- ROUND
- ROUNDUP
- ROUNDDOWN
- SUBTOTAL
- AGGREGATE

Part 3: Logical Functions

- IF
- Nested IF
- IFS
- AND
- OR
- NOT
- IF with AND
- IF with OR

Part 4: Text Functions

- LEFT
- RIGHT
- MID
- LEN
- TRIM
- CONCAT
- CONCATENATE
- TEXTJOIN
- UPPER
- LOWER
- PROPER
- FIND
- SEARCH
- SUBSTITUTE
- REPLACE
- TEXT

CONTINUED

Microsoft Excel (Basic to Advanced) - Continued

02

Advanced formulas, data analysis tools, pivots, Power Query, and automation basics.

Part 5: Date Functions

- TODAY
- NOW
- DATE
- DAY
- MONTH
- YEAR
- DATEDIF
- EDATE
- EOMONTH
- NETWORKDAYS
- WORKDAY
- WEEKDAY

Part 6: Lookup Functions

- VLOOKUP
- HLOOKUP
- XLOOKUP
- INDEX
- MATCH
- INDEX + MATCH
- Dynamic Lookup Techniques

Part 7: Conditional Functions

- SUMIF
- SUMIFS
- COUNTIF
- COUNTIFS
- AVERAGEIF
- AVERAGEIFS

Part 8: Data Analysis Tools

- Sorting
- Filtering
- Advanced Filter
- Remove Duplicates
- Text to Columns
- Flash Fill
- Data Validation
- Conditional Formatting

Part 9: Pivot Tables

- Pivot Tables
- Pivot Charts
- Slicers
- Timelines
- Dashboard Design

Part 10: Advanced Excel

- Dynamic Arrays
- FILTER
- SORT
- UNIQUE
- SEQUENCE
- Named Ranges
- Error Handling
- Power Query
- Basic VBA
- Macros

MODULE 03

SQL (Beginner to Advanced)

03

Structured database learning from relational fundamentals and query syntax through joins, window functions, optimization, and applied SQL projects.

Phase 1: Database Fundamentals

- Data vs. Information
- Database Management Systems (DBMS)
- Relational Database Management Systems (RDBMS)
- Introduction to SQL
- Database Architecture
- Keys
- Constraints
- Schema
- Normalization
- ACID Properties

Phase 2: SQL Basics

- CREATE
- ALTER
- DROP
- TRUNCATE
- INSERT
- UPDATE
- DELETE
- SELECT
- WHERE
- ORDER BY
- LIMIT
- DISTINCT
- LIKE
- IN
- BETWEEN
- NULL Handling
- CASE

Phase 3: Aggregate Functions

- COUNT
- SUM
- AVG
- MIN
- MAX
- GROUP BY
- HAVING

Phase 4: Joins

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL JOIN
- SELF JOIN
- CROSS JOIN

Phase 5: Intermediate SQL

- Subqueries
- Correlated Subqueries
- Common Table Expressions (CTE)
- Recursive CTE
- UNION
- UNION ALL
- INTERSECT
- EXCEPT

CONTINUED

SQL (Beginner to Advanced) - Continued

03

Window functions, advanced database objects, query optimization, and applied SQL projects.

Phase 6: Window Functions

- ROW_NUMBER
- RANK
- DENSE_RANK
- NTILE
- LEAD
- LAG
- FIRST_VALUE
- LAST_VALUE

Phase 7: Advanced SQL

- Views
- Indexes
- Stored Procedures
- Functions
- Transactions
- Query Optimization
- Performance Tuning

SQL Projects

- HR Database
- Sales Analysis
- Customer Retention
- Banking Database
- Hospital Database

GOAL

Write reliable, business-focused queries and explain how results support reporting decisions.

MODULE 04

Python for Data Analytics

04

Practical Python programming for data handling, analysis, visualization, and reusable analytical workflows.

Python Basics

- Variables
- Data Types
- Operators
- Strings
- Lists
- Tuples
- Dictionaries
- Sets

Control Flow

- IF Statements
- ELIF Statements
- ELSE Statements
- Loops
- Break
- Continue
- Pass

Functions

- User-Defined Functions
- Lambda Functions
- Map
- Filter
- Reduce

Object-Oriented Programming (OOP)

- Classes
- Objects
- Constructors
- Inheritance
- Polymorphism

File Handling

- Read Files
- Write Files
- CSV Files
- Excel Files
- JSON Files

Exception Handling

- Try
- Except
- Finally
- Raise

CONTINUED

Python for Data Analytics - Continued

04

Core analytical libraries for numerical work, data manipulation, and visualization.

NumPy

- Arrays
- Broadcasting
- Mathematical Operations

Pandas

- Series
- DataFrame
- Merge
- GroupBy
- Pivot
- Missing Values
- Data Cleaning

Matplotlib

- Line Chart
- Bar Chart
- Pie Chart
- Histogram
- Scatter Plot

Seaborn

- Heatmap
- Pairplot
- Boxplot
- Violin Plot

ANALYTICAL WORKFLOW

Load -> Clean -> Explore -> Visualize -> Explain

MODULE 05

Statistics

05

Statistical foundations required to interpret data, evaluate relationships, test assumptions, and support evidence-based business decisions.

Descriptive Statistics

- Mean
- Median
- Mode
- Variance
- Standard Deviation
- Percentiles
- Quartiles

Additional Topics

- Probability
- Inferential Statistics
- Sampling
- Hypothesis Testing
- Correlation
- Regression
- A/B Testing

WHAT THIS MODULE SUPPORTS

Summarize data with the right measures. Compare groups and relationships responsibly. Interpret evidence and communicate business conclusions clearly.

MODULE 06

Power BI

06

Business intelligence reporting, data modeling, DAX, interactive visualization, and secure dashboard publication.

Data Preparation

- Power BI Interface
- Data Import
- Power Query
- Data Cleaning

Modeling & DAX

- Data Modeling
- Relationships
- Star Schema
- DAX Basics
- Time Intelligence

Reporting & Publishing

- Visualizations
- Drill-through Analysis
- Publishing Reports
- KPI Dashboard
- Bookmarks
- Row-Level Security (RLS)

BUSINESS INTELLIGENCE OUTCOME

Create clean, interactive dashboards that combine data preparation, modeling, measures, KPI storytelling, drill-through analysis, and secure publishing.

MODULE 07

Tableau (Optional)

07

Optional visualization module covering dashboard creation, calculations, parameters, stories, and publishing workflows.

01

EXPLORE

- Tableau Interface
- Charts

02

BUILD

- Dashboards
- Stories

03

INTERACT

- Parameters
- Calculated Fields
- Level of Detail (LOD) Expressions

04

PUBLISH

- Publishing

VISUAL STORYTELLING FOCUS

Build clear charts and dashboards for business audiences. Use calculations and parameters to create interactive analysis. Organize insights into stories and publishable reporting workflows.

MODULE 08

Real-World Projects

08

Applied portfolio work designed to reinforce business analysis, dashboard development, insight generation, and presentation skills.

01

HR Analytics Dashboard

02

Sales Dashboard

03

Finance Dashboard

04

Customer Churn Analysis

05

Retail Dashboard

06

E-commerce Dashboard

07

Hospital Dashboard

08

Banking Dashboard

09

IPL Analysis

10

Netflix Dashboard

PORTFOLIO PRACTICE ACROSS HR, SALES, FINANCE, RETAIL, E-COMMERCE, HEALTHCARE, BANKING, SPORTS AND MEDIA

MODULE 09

Interview Preparation

09

Structured preparation for technical interviews, business case discussions, portfolio presentation, resume development, and mock interview practice.

Technical Preparation

- Excel Interview Questions
- SQL Interview Questions
- Python Coding Questions
- Power BI Interview Questions
- Statistics Questions

Career Readiness

- Case Studies
- Resume Building
- Mock Interviews
- Portfolio presentation practice
- Explain projects in business language

INTERVIEW GOAL

Help learners explain not only which tools they used, but also the business problem, method, result, limitations, and recommended next action.

MODULE 10

Capstone Project

10

A complete end-to-end analytical project integrating data preparation, SQL analysis, Python exploration, dashboard development, business insights, and professional documentation.

01

CAPSTONE STAGE

Data Collection

02

CAPSTONE STAGE

Data Cleaning

03

CAPSTONE STAGE

SQL Analysis

04

CAPSTONE STAGE

Python Exploratory Data Analysis (EDA)

05

CAPSTONE STAGE

Power BI Dashboard

06

CAPSTONE STAGE

Business Insights

07

CAPSTONE STAGE

Final Presentation

08

CAPSTONE STAGE

GitHub Documentation

PROGRAM OUTCOME

A portfolio-ready analytical case from raw data to final insight, dashboard, presentation, and documented project workflow.