



MERITSHOT

# Program Delivery Plan

## **Data Science, AI & Machine Learning**

SpecializationA Complete time line guide for the 9 Months Data Science, AI & Machine Learning PG Program offered at Meritshot

# Course Outline

---

## Data Science, AI & Machine Learning Specialization

**Excel for Data  
Analysis**  
*(4 Weeks)*

**Data Visualization  
& BI Tools**  
*(4 Weeks)*

**SQL for Data  
Analytics**  
*(4 Weeks)*

**Python for Data  
Analysis**  
*(4 Weeks)*

**Statistics for  
Data Science**  
*(4 Weeks)*

**Machine Learning  
Fundamentals**  
*(4 Weeks)*

**Advanced ML &  
NLP**  
*(3 Weeks)*

**Generative AI &  
LLMs**  
*(3 Weeks)*

**Agentic AI &  
Autonomous Systems**  
*(6 Weeks)*



# Excel for Data Analysis

---

<b>Week 1</b>	Weekends	Excel Basics & Shortcuts
	Weekdays	Data Cleaning & Transformation
<b>Week 2</b>	Weekends	Lookup, Logical & Statistical Functions
	Weekdays	Pivot Tables & KPI Dashboards
<b>Week 3</b>	Weekends	Sales & HR Dashboard Project
	Weekdays	Business Analysis Foundation
<b>Week 4</b>	Weekends	HR Analytics Dashboard
	Weekdays	Business Metrics Interpretation



# Data Visualization & BI Tools

---

<b>Week 5</b>	Weekends	Data Visualization Principles
	Weekdays	Power BI / Tableau Interface
<b>Week 6</b>	Weekends	Data Modeling & Relationships
	Weekdays	DAX Fundamentals
<b>Week 7</b>	Weekends	Calculated Measures & Aggregations
	Weekdays	Dashboard Storytelling
<b>Week 8</b>	Weekends	Executive Business Dashboard
	Weekdays	Industry-Based BI Case Study



# SQL for Data Analytics

---

<b>Week 9</b>	Weekends	Database Fundamentals
	Weekdays	SELECT, WHERE, GROUP BY
<b>Week 10</b>	Weekends	JOINS (INNER, LEFT, RIGHT, FULL)
	Weekdays	Subqueries & CTEs
<b>Week 11</b>	Weekends	Window Functions
	Weekdays	Query Optimization Basics
<b>Week 12</b>	Weekends	Retail Business Insights Project
	Weekdays	Customer Revenue & Segmentation Analysis



# SQL for Data Analytics

---

<b>Week 9</b>	Weekends	Database Fundamentals
	Weekdays	SELECT, WHERE, GROUP BY
<b>Week 10</b>	Weekends	JOINS (INNER, LEFT, RIGHT, FULL)
	Weekdays	Subqueries & CTEs
<b>Week 11</b>	Weekends	Window Functions
	Weekdays	Query Optimization Basics
<b>Week 12</b>	Weekends	Retail Business Insights Project
	Weekdays	Customer Revenue & Segmentation Analysis



# Python for Data Analysis

---

<b>Week 13</b>	Weekends	Python Fundamentals
	Weekdays	Data Structures (Lists, Tuples, Dictionaries, Sets)
<b>Week 14</b>	Weekends	NumPy & Pandas
	Weekdays	Data Cleaning & Wrangling
<b>Week 15</b>	Weekends	Exploratory Data Analysis (EDA)
	Weekdays	Feature Engineering
<b>Week 16</b>	Weekends	End-to-End EDA Project
	Weekdays	Automated Data Cleaning Script



# Python for Data Analysis

---

<b>Week 17</b>	Weekends	Perform programmatic data analysis
	Weekdays	Conduct structured EDA workflows
<b>Week 18</b>	Weekends	Prepare datasets for ML models
	Weekdays	Data Cleaning & Wrangling



# Statistics for Data Science

---

<b>Week 19</b>	Weekends	Descriptive Statistics
	Weekdays	Probability & Distributions
<b>Week 20</b>	Weekends	Hypothesis Testing
	Weekdays	Confidence Intervals
<b>Week 21</b>	Weekends	Correlation & Regression
	Weekdays	A/B Testing Framework
<b>Week 22</b>	Weekends	Business A/B Testing Case Study
	Weekdays	Statistical Decision-Making Project



# Machine Learning Fundamentals

---

<b>Week 23</b>	Weekends	Linear Regression
	Weekdays	Logistic Regression
<b>Week 24</b>	Weekends	Decision Trees
	Weekdays	Random Forest
<b>Week 25</b>	Weekends	KNN & SVM
	Weekdays	Boosting Algorithms (XGBoost Basics)
<b>Week 26</b>	Weekends	Customer Churn Prediction Project
	Weekdays	End-to-End ML Model Development



# Advanced ML & NLP

---

<b>Week 27</b>	Weekends	Natural Language Processing Fundamentals
	Weekdays	Text Preprocessing
<b>Week 28</b>	Weekends	TF-IDF & Embeddings
	Weekdays	Sentiment Analysis
<b>Week 29</b>	Weekends	Introduction to Deep Learning
	Weekdays	Toxic Comment Classification Project



# Generative AI & LLMs

---

<b>Week 30</b>	Weekends	Foundations of Generative AI
	Weekdays	Prompt Engineering
<b>Week 31</b>	Weekends	Large Language Model APIs
	Weekdays	RAG Pipelines
<b>Week 32</b>	Weekends	AI Workflow Integration
	Weekdays	AI-Powered Campaign Insight Generator



# Agentic AI & Autonomous Systems

---

<b>Week 33</b>	Weekends	Foundations of Agentic AI
	Weekdays	AI Agents vs Traditional AI
<b>Week 34</b>	Weekends	Memory Systems
	Weekdays	<b>Multi-Agent Architectures</b>
<b>Week 35</b>	Weekends	Agent Communication
	Weekdays	Real-World AI Agent Applications
<b>Week 36</b>	Weekends	Autonomous Reporting Systems
	Weekdays	AI for Market Research



# Agentic AI & Autonomous Systems

---

<b>Week 37</b>	Weekends	Capstone Development
	Weekdays	AI Business Intelligence Automation
<b>Week 38</b>	Weekends	Autonomous Data Analyst Agent
	Weekdays	Multi-Agent Financial Research System



# Big Data, Cloud & MLOps + Final Capstone

---

- PySpark Fundamentals
- Big Data Processing
- Cloud Basics (AWS/GCP/Azure Concepts)
- Model Packaging
- REST APIs
- CI/CD & Monitoring
- Deploy ML Model using Streamlit
- Domain Specialization Project
- Final Grand Project Presentation

## Learning Outcomes

- Deploy ML models to production
- Understand scalable AI systems
- Build portfolio-ready deployable projects

