



## Online PGDM

Second Year, Trimester IV, June 2024

**Course Name : Business Forecasting**

**Course Code : 4106**

**Max Marks : 70**

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### **Project Title: Time Series Forecasting for [Specify the Industry/Domain]**

#### **Project Overview:**

This project focuses on building a model that can predict future trends by looking at past data. It's about understanding and using different methods to forecast what comes next in a certain area, based on historical information. Students will learn how these forecasting methods work, try them out with example data, and see what their advantages and drawbacks are. The goal is to make a strong model that can accurately guess future events by analyzing patterns from the past.

#### **Project Components:**

1. Introduction to Time Series Forecasting:
2. Define time series data and its significance in various domains.
3. Explain the importance of time series forecasting in decision-making processes.
4. Basic Time Series Analysis:  
Describe common patterns in time series data (trend, seasonality, cyclicity).
5. Identify methods to detect and handle outliers in time series data.
6. Simple Forecasting Techniques:
  - Explain Simple Moving Average (SMA), Weighted Moving Average (WMA), and their applications with examples.
  - Discuss Single Exponential Smoothing (SES) and its use in forecasting.
7. Advanced Forecasting Models:
  - Describe Double Exponential Smoothing (Holt's method) and its advantages over simpler techniques.

#### **Model Evaluation and Selection:**

Explain evaluation metrics used in time series forecasting (e.g., MAE, RMSE, MAPE).

Discuss the importance of cross-validation in model selection and performance assessment.

Provide a dataset (e.g., stock prices, weather data) for students to apply various forecasting techniques learned in the assignment.

**Deliverables:**

- Cleaned and preprocessed time series dataset.
- Exploratory Data Analysis report with visualizations.
- Trained time series forecasting model(s) along with performance evaluation.
- Comprehensive project documentation outlining the methodology, findings, and conclusions.
- A final presentation summarizing the project journey, results, and recommendations.