

Marketing Analytics

Forecasting Models with Excel

Duration 16 hrs (2 Days)

Prerequisite:

Basic understanding of Excel operations like opening, closing, and saving a file

Course Introduction:

Understanding how future sales will change is one of the key information needed by manager to take data driven decisions. In this course, we will explore how one can **use forecasting models to**

- See patterns in time series data
- Make forecasts based on models

Module 1 – Introduction & Basics of Forecasting

- **Ms-Excel Refresh**
- **Basics Of Forecasting**
- **Creating Linear model with trendlines**

Module 2 - Getting Data Ready for Regression Model

In this section you will learn what actions you need to take a step by step to get the data and then prepare it for the analysis these steps are very important.

- Gathering Business Knowledge
- Data Exploration
- The Data and the Data Dictionary
- Univariate analysis and EDD
- Descriptive Data Analytics in Excel
- Outlier Treatment
- Identifying and Treating Outliers in Excel
- Missing Value Imputation
- Variable Transformation in Excel
- Dummy variable creation: Handling qualitative data
- Dummy Variable Creation in Excel
- Correlation Analysis
- Creating Correlation matrix in Excel

Module 3 - Forecasting using Regression Model

This section starts with simple linear regression and then covers multiple linear regression. We have covered the basic theory behind each concept without getting too mathematical about it so that you understand where the concept is coming from and how it is important. **The Problem Statement**

- Basic Equations and Ordinary Least Squares (OLS) method
- Assessing accuracy of predicted coefficients
- Assessing Model Accuracy: RSE and R squared
- Creating Simple Linear Regression model
- Multiple Linear Regression
- The F - statistic
- Interpreting results of Categorical variables
- Creating Multiple Linear Regression model

Section 4 - Handling Special events like Holiday sales

In this section we will learn how to incorporate effects of Day of Week Effect, Month Effect or any special event such Holidays, pay day etc.

- Forecasting in presence of special events
- Excel: Running Linear Regression using Solver
- Excel: Including the impact of Special Events

Section 5 - Identifying Seasonality & Trend for Forecasting

In this section we will learn about trends and seasonality and how to use the Solver to develop an additive or multiplicative model to estimate **trends and seasonality**. We will also learn how to use **moving averages** to eliminate seasonality to easily see trends in sales.

- Excel: Additive model to identify Trend & Seasonality
- Excel: Multiplicative model to identify Trend & Seasonality
- Moving Average Method
- Excel: Moving Average Method

Section 6- Handling Changing Trend & Seasonality over time

In this section we will learn about **Winter's Method** that changes trend and seasonal index estimates during each period has a better chance of keeping up with changes than other methods.

- Winter's Method to accommodate changing Trend & Seasonality
- Excel: Winter's method

Section 7- Forecasting models for New Products

In this section we will learn techniques to forecast new product sales. It is difficult to forecast when we have little or no historical data. The **S curve** can be used when we have little data and the famous **bass diffusion model** can be used to predict product sales even before the product is launched in the market.

- S-curve for New products
- Excel: Using Logistic curve to model S-curve
- Excel: Using Gompertz curve to model S-curve
- Bass Diffusion Model for New Products
- Excel: Implementing Bass Diffusion Model