Advanced Excel with VBA

Module – 01 : Basic Course – Basic Formula, Functions & Charts

- Formulas and Functions
- Formula Tab
- Examples of Formulas
- Auto Sum Features
- Formula
- Charts
- Smart Art Graphics

Module – 02 : Advanced Functions in Excel

- Introduction
- If Statements
- Nesting IF()'s
- Using Other Functions with IF's
- Concatenation
- LookUp Functions(VLOOKUP & HLOOKUP)
- Subtotals
- Hiding & Displaying Data

Module – 03 : Data Validations

- Introduction
- Setting Data Validations
- Data Validation
- Checking for Invalid Data

Module – 04 : Excels Analytical Tools

- Goal Seek
- Scenarios
- Summarizing Scenarios
- Creating a Scenario Pivot Table Report

Module – 05 : Pivot Table

- Using Pivot Tables to analyze data
- Pivoting
- Pivot Table Example
- Guidelines for creating a Pivot Table in Excel
- Creating a Pivot Table

Module – 06 : Introduction to VBA

- Introduction to VBA
- Work with VBA objects, properties, methods
- Working with the Visual Basic Editor
- Sub procedure, function procedure, property procedure
- Referring to Objects
- Concepts – Containers or Collections, properties, methods, events,
- Working with Workbook
- Referring to Objects
- Applying Methods
- Working with Variables and Values

Module – 07 : Working with Variables in Excel VBA

- Concept of Variables
- Valid and invalid variable names
- Variables - Numeric Data Types
- Variables – Non - Numeric Data Types

Module – 08 : Message Box & Loop

- Style Values and Command Buttons
- Return Values and Command Buttons
- Looping
- For...Next loop
- Do.....Loop While
- Do until.....Loop
- Do while..... Loop
- Do.....Loop until

Module – 09 : Array in Excel VBA

- What is an Array?
- Declaring Arrays in Excel VBA
- One Dimensional Array
- Two Dimensional Array

Module – 10 : Developing Macros in Excel

- Creating a Macro
- Excel Macro Recording facility
- Modifying the existing Macro in VB editor
- Understanding the Macro and saving a workbook with Macro contents
- Exporting files to different applications

Module – 11 : UserForm

- Requirement of UserForm
- Working with objects like textboxes, buttons, check boxes, spin buttons etc.
- Filling up UserForm with pre-defined values
- Macro Coding for different buttons
- Creating Connectivity between UserForm and Excel Worksheet

Module – 12 : UserForm (Cont'd)

- Designing UserForm with Validations
- Filling up UserForm with pre-defined values
- Creating Connectivity between UserForm and Excel Worksheet using offset
- Transfer of data from excel file to a word document
- Transfer of data from txt file to an excel document

MS Access

- MS Access - Overview
- Concepts of RDBMS
- Objects
- Creating a Database
- Understanding Datatypes in Access
- Creating Tables
- Adding data to tables
- Query data
- Creating different queries
- Relating Data
- Creation of Relationship
- One-to-One Relationship
- One-to-Many Relationship
- Calculated Expressions
- Indexing
- Grouping Data
- Joins
- Creating Forms
- Modifying Forms
- Controls & Properties
- Creating Reports
- Formatting Reports
- Data Import
- Data Export

Advanced Statistics

- Types of data, Graphical representation
- Correlation, Data Modeling & Index Numbers
- Measures of Central Tendency & Dispersion
- Forecasting & Time Series Analysis
- Probability, Bayesian Theory
- Probability Distribution and Mathematical Expectation
- Sampling and Sampling Distribution
- Theory of Estimation and Testing of Hypothesis
- Analysis of Variance
- Regression Models
- Cluster Analysis
- Naïve Bayes Classification
- Time Series

Data Analytics Using R Programming

Exploring R

- Installing R
- Working with Scripts
- Navigating the Workspace

Reading Datasets into R, Exporting Data from R

- Using C() command to create Data
- Using scan() command for getting Data in R
- Reading Bigger Data files
- Getting data out of R
- Saving your work in R

Manipulating and Processing Data in R

- Deciding most appropriate data structure
- Creating subset of data
- Adding calculated fields to data
- Combining and merging datasets in R
- Sorting and ordering Data
- Introduction to the formula interface
- Putting your data into Shape

Using Functions and Packages in R

- Moving from Scripts to Functions
- Using Argument the smart way
- Scope of the function
- Dispatching to a Method
- Packages
- Using Packages

Descriptive Statistics in R

- Summary Commands
- Name Commands
- Summarizing Samples
- Cumulative Statistics
- Summary Statistics for Data Frames
- Summary Statistics for Matrix Objects
- Summary Statistics for Lists
- Contingency Tables
- Cross Tabulation

Analyzing Data Using Functions, Loops, and Data Frames

- Matrices, Lists, and Data Frames
- Indexing vectors, Matrices, and Lists
- Programming in R

Graphical Analysis in R

- Plots for single variable
- Plots with two variables
- Plots with multiple Comparisons
- Plots with multiple Variables
- Special plots
- Saving Graphs to External Files

Hypotheses Testing in R

- Introduction to Statistical Hypotheses
- Using the student's t-test
- U-test
- Paired t- and u-test
- Tests for Association
- Goodness of Fit Tests

Linear Regression in R

- Basics of Linear Regression Analysis
- Working with Linear Regression
- Simple Linear Regression in R
- Linear Model result Objects

Tree Models

Factor Analysis & Clustering

Principal Component Analysis

Time Series

Using R Commander Package

- Python – Basics
- Build-in Data Structures & Functions
- Operating on Data in Pandas & Missing Values
- Hierarchical Indexing
- Combining Datasets – Join, Merge, append etc
- Aggregation & Grouping
- Vectorized String Operations
- Visualisation with Matplotlab
- Analysing Data Through Advanced Visualisation
- Inferential Statistics
- Designing Models with Linear Regression
- Designing Models with Logistic Regression
- Hypothesis Checking
- K-Means Clustering

Machine Learning Using Python

- Getting started with Python
- Number Processing with Numpy
- Database operations with Pandas
- Data Visualization with Matplotlib and Seaborn
- Fundamentals of Machine Learning
- Perceptron algorithm using Numpy
- Implementing Regression using Scikit-learn Module LinearRegression
- Feature Selection : importance and implementation using Scikit-learn
- Non Linear classification using Decision Tree
- RandomForest and ideas of Bootstraping
- Classification using Baysian Theory and Naïve-Bayes
- Non Parametric Machine Learning Algorithm : K nearest neighbour(kNN)
- Unsupervised learning using K-means cluster
- Kernel Density Estimation

Deep Learning with TensorFlow & Keras

Introduction to Deep Learning

- What Deep Learning?
- What is a neural network?
- Reasons to go Deep
- Choice of Deep Net

Neural Network

- Introduction to Artificial Neural Networks
- Feedforward Neural networks
- Backpropagation
- Activation functions
- MLP

Overview of Python Programming

- Introduction to python
- Python data types
- Functions
- Classes
- Modules

Using Numpy and Pandas

- Introduction to Numpy
- Creating N-Dimensional numpyarrays
- Array mathematics
- Slicing N-Dimensional array
- Introduction to pandas
- Working with pandasSeries
- Working with pandas Dataframe

Deep Learning Models

- Restricted Boltzmann Machines
- Deep Belief Nets
- Convolutional Networks
- Recurrent Nets
- Autoencoders
- Recursive Neural Tensor Nets

Deep Learning Software Libraries I (TensorFlow)

- Introduction to TensorFlow
- HelloWorld with TensorFlow
- Basic computation with TensorFlow

Deep Learning Software Libraries II (Keras)

- Introduction to Keras
- Keras vs TensorFlow
- Building Basic models with Keras

Convolutional Neural Networks (CNN)

- CNN History
- Understanding CNNs
- CNN Application using Keras

Recurrent Neural Networks (RNN)

- Intro to RNN Model
- Long Short-Term memory (LSTM)
- Recursive Neural Tensor Network Theory

Unsupervised Learning

- Applications of Unsupervised Learning
- Restricted Boltzmann Machine