

## ADVANCED SPREADSHEETS TOOLS

### CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
<b>Advanced Spreadsheets Tools</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>12<sup>th</sup> Pass</b>	<b>NIL</b>

#### Learning Objectives

The Learning Objectives of this course are as follows:

- To enable the students to use Excel for advanced data analysis
- To equip the students to with automation skills on excel
- To enable the students to use excel for informed decision making.

#### Learning outcomes

The Learning Outcomes of this course are as follows:

- By studying this course, students will be able to make meaningful representations of data in the form of charts and pivot tables.
- By studying this course, students will be able to draw analysis on data using spreadsheets and use interpretation to make decisions.
- By studying this course, students will be able to generate word documents with appropriate formatting, layout, proofing.
- By studying this course, students will be able to manage data for generating queries, forms and reports in a database.

#### SYLLABUS

##### **Unit 1: Excel Advanced Techniques**

**(3 Weeks)**

Templates, Efficiency, and Risk (Standard Deviation, Variance, and Coefficient of Variation), Data Validation; \*Functions and Power functions, Array Formulae (Frequency Distribution, mode.mult, mode.sngl), Tables, Advanced Range Names, What-if-analysis: Goal-seek, Data tables, and Scenario Manager; Data analysis ToolPak: Descriptive Statistics, Moving averages, Histogram, Covariance, correlation, and Regression analysis (only for projection); solver add-



in. Problem Solving using Solver (optimal product mix, workforce scheduling, transportation, capital budgeting, financial planning), Integrating excel with other tools: MS word, outlook, PowerPoint, Access, Power BI.

### **Unit 2: Excel Interactivity and Automation**

**(4 Weeks)**

Index and Match, Offset, Dynamic Charting, Database functions, Text functions, and Error functions: IfError, IsError, Aggregate, Circular Reference, Formula Auditing, Floating-Point Errors, Form Controls (Button, Combo, Check box, Spinner, List, Option), Visual Basic (only basic). Recording Macros, Absolute and relative macros, editing macros, Use of spinner buttons and command buttons; Sub Procedure, Function Procedure (creating New Functions); Working with Loops: Do\_while loop, For\_Next loop; Creating User Forms: Message Box, Input Box; If\_Then\_Else.

### **Unit 3: Introduction to VBA**

**(4 Weeks)**

Conditional Formatting, Charts that Inspire (Waterfall, Column, Line, Combo, Thermometer, Scatter, Histogram) Slicers, Sparklines, Graphics Tricks and Techniques, Worksheet Automation using Macros: Absolute and relative macros, editing macros, Creating new functions using macros, Use of spinner buttons and command buttons.

### **Unit 4: Data Analysis and Decision-Making**

**(4 Weeks)**

Working with External Data, Advanced Uses of PivotTables, PowerPivot, Reporting with PowerPivot, Power query, Dashboard, Creating a spreadsheet in the area of: Loan and Lease statement; Ratio Analysis; Payroll Accounting; Capital Budgeting (NPV & IRR), Portfolio Management, Breakeven analysis, and Sensitivity analysis; Operations Management: Constraint, Forecasting & Trend Analysis optimization, Assignment Problems; Depreciation Accounting (Single Method); Graphical representation of data; Frequency distribution and its statistical parameters; Correlation and Regression Analysis

### **Essential/recommended readings**

- Excel 2016 Power Programming with VBA, Michael Alexander, Dick Kusleika, Wiley.
- Financial Analysis and Modelling Using Excel and VBA, Chandan Sengupta, Second Edition, Wiley Student Edition.
- MS Excel 2016, Data Analysis & Business Modelling, Wayne Winston, PHI.

### **Suggestive readings**

- Microsoft Excel 2016 - Data Analysis and Business Modelling Paperback – 1 May 2017 Wayne L. Winston, Microsoft Press.
- Microsoft Excel Practical Formulae: From Basic Data Analysis to Advanced Formulae
- Manipulation Diane Griffiths.



**Examination scheme and mode:**

Total Marks: 100

Internal Assessment: 25 Marks

Practical Exam (Internal): 25 Marks

End Semester University Exam: 50 Marks

The Internal Assessment for the course may include Class participation, Assignments, Class tests, Projects, Field Work, Presentations, amongst others as decided by the faculty.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**