



Advanced Excel for Data Management & Analysis

Welcome to the Advanced Excel for Data Management & Analysis course at St. Bede's College. This 15-week undergraduate program is designed to elevate your Excel proficiency from basic knowledge to professional-level skills.

We will cover essential techniques in data analysis, visualization, and automation, preparing you for real-world data handling, business analytics, and enhanced office productivity.



Course Objectives and Structure

Professional-Level Skills

Equip students with advanced Excel capabilities for complex data tasks.

Data Analysis & Automation

Introduce techniques for effective data analysis, visualization, and workflow automation.

Real-World Readiness

Prepare students for practical applications in business analytics and office environments.

This course spans 45 lectures over 15 weeks, building upon basic Excel knowledge. Our comprehensive syllabus ensures a deep dive into advanced functionalities.



Unit 1: Advanced Formulas & Functions

Key Topics

- Logical Functions: IF, IFS, AND, OR, NOT
- Nested Formulas
- Lookup Functions: VLOOKUP, HLOOKUP, XLOOKUP
- INDEX & MATCH
- Error Handling: IFERROR, ISERROR

Practical Applications

- Use VLOOKUP for student marksheets.
- Combine IF + AND + OR in complex conditions.
- Apply INDEX-MATCH for dynamic data search.

Unit 1, spanning Lectures 1-10, focuses on mastering advanced formulas and functions. Students will learn to implement logical functions, create nested formulas, and utilize powerful lookup tools like VLOOKUP, HLOOKUP, XLOOKUP, INDEX, and MATCH.

Emphasis will also be placed on robust error handling techniques to ensure data integrity.

Unit 2: Data Tools & Validation



Data Sorting & Filtering

Learn custom sorting and advanced filtering techniques for data organization.



Advanced Data Validation

Create dropdown menus and apply conditional validation for data accuracy.



Data Cleaning

Master techniques like removing duplicates, Text to Columns, Flash Fill, and AutoFill.



Data Consolidation

Consolidate data from multiple sheets for comprehensive analysis.

Lectures 11-18 cover essential data tools and validation techniques. Students will gain proficiency in data sorting, custom filtering, and advanced data validation methods.

Practical sessions will focus on cleaning raw data, removing duplicates, and consolidating information from various sources to ensure data quality and readiness for analysis.



Unit 3: Pivot Tables & Data Analysis

Core Concepts

- Creating Pivot Tables and Pivot Charts
- Grouping, Filtering, Slicers for dynamic views
- Calculated Fields and Custom Summaries
- Introduction to Power Pivot
- Using Subtotals and Data Summarization

Hands-on Exercises

- Build a pivot table from student or sales datasets.
- Utilize slicers for interactive data filtering.
- Apply calculated fields to derive average marks or sales figures.

Unit 3 (Lectures 19-26) delves into the powerful world of Pivot Tables and advanced data analysis. Students will learn to create, manipulate, and customize pivot tables and charts, incorporating grouping, filtering, and slicers for dynamic data exploration.

The unit also introduces calculated fields, custom summaries, and an overview of Power Pivot for more complex data models.

Unit 4: Data Visualization & Dashboard Design

Advanced Charting

Explore Combo Charts, Sparklines, and Waterfall Charts for impactful visuals.

Conditional Formatting

Apply Icons, Data Bars, and Color Scales for visual data alerts and trends.

Dashboard Components

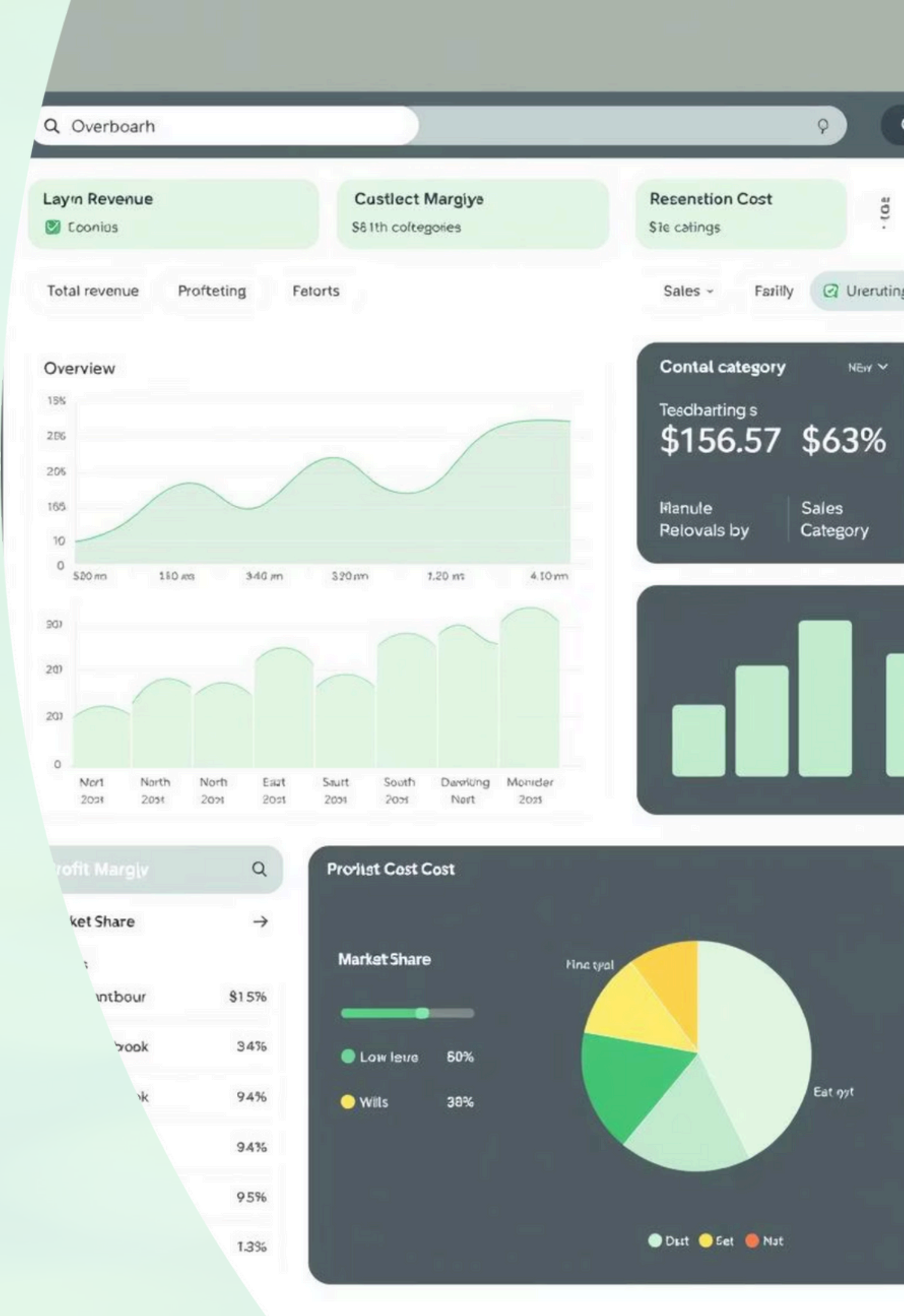
Integrate interactive charts, buttons, and form controls (checkboxes, dropdowns).

Live Dashboards

Link charts and data to create dynamic, real-time dashboards.

Lectures 27-35 focus on transforming raw data into compelling visual stories. Students will master advanced charting techniques, conditional formatting for visual insights, and the design of interactive dashboard components.

Practical sessions include designing dashboards for student attendance and performance tracking, and applying advanced conditional formatting for automated alerts.



Unit 5: Excel Automation with Macros

Macro Fundamentals

- Introduction to Macros and VBA
- Recording Macros for repetitive tasks
- Assigning Macros to Buttons for easy execution
- Basics of VBA Editor for code modification

Automation in Practice

- Automate reports and data entry processes.
- Record a macro to automate formatting.
- Create buttons for auto-report generation.
- Write basic VBA code for message boxes.

Unit 5 (Lectures 36-42) introduces students to the power of Excel automation through Macros and VBA. This unit covers the fundamentals of recording macros, assigning them to buttons, and basic navigation within the VBA Editor.

Students will learn to automate routine tasks, such as report generation and data entry, significantly boosting their office productivity.

Final Project & Learning Outcomes

1 Master Advanced Excel

Gain expertise in complex formulas, analytical tools, and data manipulation.

2 Build Dynamic Dashboards

Develop skills in creating interactive and insightful data presentations.

3 Automate Routine Tasks

Learn to use macros for efficient workflow automation.

4 Real-World Application

Apply acquired Excel skills to solve practical data challenges in various projects.

The course culminates in Lectures 43-45 with a final project, allowing students to apply their comprehensive Excel skills. Project options include creating interactive sales dashboards, automating attendance reports, or analyzing survey data.

Upon completion, students will have mastered advanced Excel, built dynamic dashboards, automated tasks with macros, and be prepared for real-world data projects.

