

ANALYTICS FOR MANAGERS
26MBSE507

(COURSE HANDBOOK)

MBA

COURSE FACULTY:
MS. RAMYA BHARADWAJ B S

1. GENERAL INFORMATION

Welcome to Analytics for Managers!

We are excited to have you on this learning journey where you will explore powerful tools that are essential for data analysis, automation, and problem-solving in the business world. This course will equip you with the necessary skills in Excel, Python and Power BI, enabling you to tackle real-world challenges with ease and efficiency.

From basic data entry to advanced functions and financial modelling, you will learn how to use Excel for data manipulation, analysis, and creating visually engaging reports. You will start by learning how to effectively navigate and manipulate Excel spread sheets. This includes entering data, applying basic formatting, and using essential features like text wrapping, data sorting, and filtering. Exercises will guide you to practice these basic Excel functions and lay a strong foundation for data management and presentation.

We will introduce you to Python, one of the most versatile programming languages, which are widely used for automation, data analysis, and more. You will write simple Python programs and gradually progress to solving complex problems. You get better understanding Python syntax, variables, data types, and basic operators. We will cover the building blocks of programs and help you understand program structure. You can begin writing simple Python programs, focusing on syntax and basic programming concepts.

Power BI is widely used for creating visual reports, analysing data, and sharing insights. You will start by building simple charts and gradually progress to creating full interactive dashboards. You get a better understanding of how to clean data, connect different sources, and present key information clearly. We will cover the core building blocks of report design and help you structure your data effectively. You will also be introduced to the Power BI interface, the primary workspace where you load and design your reports. You can begin creating visual summaries, focusing on clear layouts and basic data exploration.

This course focuses on practical applications. By the end of the course, you will be capable of applying your skills to automate tasks, analyse data, and create professional reports or dashboards.

We are excited to guide you through this dynamic and practical course. With the knowledge of Excel, Python and Power BI, you will gain the confidence and expertise to handle a wide variety of data-related tasks, automate processes, and improve decision-making. This is just the beginning of your journey into the world of data analysis and programming.

1.1.Course Objectives

- **Basic Excel & Python Proficiency:** Impart the knowledge on basic to advanced Excel functions, data visualization techniques, and business applications**.**
- **Python Programming:** Familiarize with fundamental Python programming concepts and use Python to solve simple problems.
- **Power BI:** Familiarize with Power BI to create dashboards.

1.2.Course Outcomes

- CO1: Apply Excel Macros to solve simple problems.
- CO2: Make use of Power BI to create Dashboards.
- CO3: Apply basics of Python for data analysis.

1.3.Set Text and Suggested Sources

All the below mentioned books are available in the 1st Floor Library.

Key Text Books:

1. Allen B Downey, Think Python, 3rd edition, Shroff Publishers and Distributors Pvt. Ltd. 2024
2. Michael Alexander, Excel Macros for Dummies, 2nd Edition, Wiley India, 2018
3. Charles Severance, Python for Everybody-Exploring data in Python 3, First edition, Shroff Publishers and Distributors Pvt. Ltd, 2018

Reference Books:

1. Allen Downey, Jeffrey Elkner, Chris Meyers, Learning with Python 2nd edition, Dream Tech Press, 2016
2. Jake Vander Plas, Python Data Science Handbook, 6th edition, Shroff Publishers and Distributors Pvt. Ltd, 2022.

1.4. Self-Study Course

In this course, students can complete the Python for Beginners" offered by University of Michigan in Coursera, Microsoft Power Bi-From Basics to Advanced and Excel From Beginner to Advance by Udemy Inc which will help them to enhance their knowledge along with the curriculum. This digital literacy program is essential as it provides students with valuable skills that complement the traditional learning methods employed in our course. By engaging with these courses, students can enhance their understanding of Excel, Python and Power BI

and its benefits which is increasingly important in today's academic and professional environments. This preparatory work will support their success throughout the course and beyond.

Note: The above link directly leads to the courses that can be undertaken by the students. Please register using the same links or stay logged in to be able to access the courses.

2. THE COURSE

2.1.Course Description

ANALYTICS FOR MANAGERS			
Semester	**I**	CIE Marks	**50**
Course Code	**26MBSE517**	SEE Marks	**50**
Teaching Hrs/Week (L:T:P)	**1:0:2**	Exam Hrs	**1.5**
Total Hrs	**37 (13+24)**	Credits	**02**

The Analytics for Manager course is designed to provide students with foundational knowledge of Excel Macros, Python Programming and Power BI. The course will run for 13 weeks during Semester 1 and consists of 5 modules that cover essential topics of Excel, Python and Power BI. Each week includes 1 lecture hour and 2 laboratory hours, delivered by Ms. Ramya Bharadwaj B S, focusing on theoretical concepts, practical applications, and course-related activities. Spanning a total of 37 hours, this 2-credit course is assessed through Continuous Internal Evaluation (CIE) for 50 marks and a Semester-End Examination (SEE) for 50 marks, with 1.5-hour exam duration. This structure ensures a balanced and engaging learning experience for students.

2.2.Initiating Contact with Staff and Other Students

We welcome your questions and encourage open communication about the course. Due to the large number of students, please use email and office hours thoughtfully. Before reaching out with administrative inquiries, check previous communications and the materials in this handbook and on our website. We also encourage you to collaborate with your peers, as this will deepen your understanding and strengthen our academic community.

2.3.Resources

Along traditional books, resources to students include a variety of dynamic tools such as digital libraries, e-learning platforms, and research databases. These modern learning environments provide 24/7 access to academic materials, interactive courses, and the latest research, empowering students to delve into knowledge and excel in their fields.

Students can find a wealth of resources on the college website, such as the VTU Consortium, various e-learning platforms, and open-access repositories. Additionally, government portals like NPTEL and NDLI offer access to e-books, research papers, video lectures, and interactive tutorials, creating flexible and comprehensive learning opportunities.

E-learning and digital library can be accessed via the college website https://mite.ac.in/ (Campus Life section > Library > VTU Consortium/e-learning platforms/additional sources).

2.4.Staff

Course Faculty: Ms. Ramya Bharadwaj B S
Cabin: 3rd floor, PG Block
Email: ramya@mite.ac.in

2.5. Topics and Reading materials for each module

Module 1 *No. of Hours: 2+4*

- **Topic: Introduction to spread sheets**
  - Includes understanding the Data entry, formatting (text wrapping, merging cells), lists, and managing objects (insert, delete).Page layout features (freeze panes, page breaks, orientation, print areas, etc.).Hyperlinks, images, and symbols.
- **Activities:**
  - **Lab Component:** Exercises on the creating and printing a class time table utilizing all the basic formatting. This needs to be printed and pasted to the record book.

NOTE: Students can begin completing the online module courses – Udemy, Inc: - Excel from Beginner to Advanced (Link is provided here "Excel from Beginner to Advanced" and above in self-study section).

Module 2 *No. of Hours: 3+4*

- **Topic: Advanced Excel Functions**
  - Statistical functions (SUM, AVERAGE, COUNTIF, MEDIAN, MODE, etc.).
  - Date and time functions, logical functions (IF, AND, OR), and textual functions (TRIM, UPPER, LOWER).

- Advanced data manipulation (LOOKUPs, INDEX, MATCH, SUMIFS, and COUNTIFS).
- Pivot Table
- Scenario analysis, data visualization (charts: bar, pie, line, etc.).
- Excel Macros.

- **Activities:**
  - **Lab Component:** Exercises on analysing different types of data using logical and lookup functions (Eg: From large set of data, eliminate duplication, identify data from specific row/cell) and presenting through Pivot table and charts.
- **Self- Study:**
  - Preparation of Trial Balance and Final accounts.
  - Preparation of Balance sheet from ratios through Exel.
- **Essential Reading:**
  - Michael Alexander, Excel Macros for Dummies, 2nd Edition, Wiley India, 2018, Chapter 1 and 2.

Module 3 *No. of Hours: 2+4*

- **Topic: Introduction to Python Program**
  - Python programming basics (reserved words, writing simple programs).
  - Introduction to variables, expressions, statements, operators, and comments.
  - Input and Output statements
- **Activities:**
  - **Lab Component:** Writing simple Python program on calculations for sales, salary breakdowns, student marks, profit-loss and report generation using Python fundamentals, arithmetic operations and simple conditional statements.
  - **Eg:** Write a Python program to accept the number of products sold and the price per product. Calculate and display the total sales revenue.
  - Write a Python program to input an employee's basic salary and calculate:
    - House Rent Allowance (HRA) = 20% of basic salary
    - Dearness Allowance (DA) = 10% of basic salary
    - Gross Salary = Basic Salary + HRA + DA
  - Write a Python program to accept marks in five subjects. Calculate the total marks and percentage, and display the results.
- **Essential Reading:**
  - Allen B Downey, Think Python, 2nd edition, Shroff Publishers and Distributors Pvt. Ltd. 2024, Chapter 1and 2.
- **Additional Reading:**
  - Allen Downey, Jeffrey Elkner, Chris Meyers, Learning with Python 2nd edition, Dream Tech Press, 2018

NOTE: Students can begin completing the online module courses - Coursera: - Python for Beginners (Link is provided here "Python for Beginners" and above in self-study section).

Module 4 *No. of Hours: 3+6*

- **Topic: Python Programming Basics**
  - Control flow and loops (if-else, while, for loops, break, continue).
  - Python Data Structures: Lists, Tuples, Dictionaries, Common Operations on Lists, Tuples and Dictionaries.
  - File Handling: Text and Binary Files, Reading and Writing Files.
  - Data visualization using python
- **Activities:**
  - **Lab Component:** Writing Python program for performance reporting, sales data analysis, file management and visualization.
  - **Eg:** Write a Python program to accept an employee's performance score (0–100). Display the performance category using if–elif–else: Excellent (≥90), Good (75–89), Average(50–74), and Needs Improvement (<50).
  - Write a Python program to input the daily sales of 7 days using a for loop. Calculate and display the total sales, average sales, highest sales, and lowest sales.
  - Create a list of products and a dictionary containing product names and their prices. Display the product list, allow the user to search for a product, and display its price if available.
- **Essential Reading**:
  - Charles Severance, Python for Everybody-Exploring data in Python 3, First edition, Shroff Publishers and Distributors Pvt. Ltd, 2018, Chapter 5 and 6.

Module 5 *No. of Hours: 3+6*

- **Topic: Introduction to Power BI**
  - Business Intelligence (BI): Introduction to Power BI
  - Data Preparation and Visualization
  - Dashboard Design and Business Analytics: Key Performance Indicators (KPIs) and Interactive dashboards using filters and slicers.
- **Activities:**
  - **Lab Component:** Exercises on development of interactive Power BI dashboards for marketing, HR and Finance data.
  - **Eg:** A retail company has provided sales data containing Region, Product Category, Sales, Profit, Quantity Sold, and Month. Create an interactive Power BI dashboard showing:
    - Total Sales
    - Total Profit

- Sales by Region
- Sales by Product Category
- Monthly Sales Trend

- Add appropriate filters (Region and Product Category).

NOTE: Students can begin completing the online module courses - Udemy: Power Bi from Basics to Advanced (Link is provided here Microsoft Power Bi-From Basics to Advanced and above in self-study section).

3. ASSESSMENT

The assessment for Analytics for Managers course is divided into two components: Continuous Internal Evaluation (CIE) and Semester End Examination (SEE), each accounting for 50% of the total marks.

Continuous Internal Evaluation (CIE) comprises two internal tests, scheduled for 8th and 14th week, which together contribute 20% of the total marks. Additionally, students can earn 30% through the Conduction of lab experiments, maintaining the record book & attending viva time to time during lab sessions (CRV-Conduction, Record & Viva)

Semester End Examination (SEE) constitutes the remaining 50% of the total marks & this will be a completely lab examination. . Key information regarding examination dates and related details can be accessed via the college website (Academics and Courses section > Calendar of Events > PG Odd Sem).

Rubrics for CIE Marks:

Criteria	**2 Internal Assessments (Laboratory) (10+10)**	**Conduction of 10 Experiments (3 Excel + 4 Python+3 Power BI)**	**Record Book**	**Internal Viva**
Marks	**20**	**15**	**10**	**5**