Marwadi University
Marwadi Chandarana Group
NAAC A+

COURSE TITLE	**INTRODUCTION TO PYTHON PROGRAMMING**
COURSE CODE	**04BM0202**
COURSE CREDITS	**3**

Course Outcomes: After completion of this course, student will be able to:

1 Demonstrate proficiency in Python programming fundamentals and syntax.

2 Implement control flow structures and loops for decision making and iteration.

3 Design and develop object-oriented Python programs using classes, objects, inheritance, and encapsulation.

4 Apply error handling techniques to write robust and reliable Python code.

5 Utilize advanced Python features such as regular expressions, modules, and libraries for efficient programming.

Pre-requisite of course: Familiarity with Python programming, Understanding of basic business functions, Basic statistics and data analysis skills

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	0	0	30	20	50	0

Contents : Unit	Topics	Contact Hours
1	**Introduction to Python** What is Python? Python's Popularity and Use Cases, Python Syntax and Structure, Python Basics: Variables and Data Types Understanding Variables and Naming Conventions, Numeric Data Types (int, float), Text Data Type (str), Operators and Expressions, Arithmetic Operators, Comparison Operators, Logical Operators, Input and Output Operations, Using input () for User Input, Printing Output with print ()	8
2	**Control Flow and Loops** Control Statements: Conditional Statements (if, elif, else), : Logical Operators and Conditions (Using Logical AND, OR, NOT) , Complex Conditions, While Loops: : Using while Loops for Iteration, : Controlling Loops with break and continue; : For Loops: Iterating Over Sequences (Lists, Strings), Using range() for Controlled Iteration, Loop Control Statements (break, continue) : Breaking Out of a Loop, : Skipping Iterations with continue	10

Contents : Unit	Topics	Contact Hours
3	**Error Handling and Exception Handling** Exception Handling: Introduction to Exceptions, Understanding Exceptions in Python, Common Built-in Exceptions, Handling Exceptions with try and except, Using try-except Blocks, Handling Multiple Exceptions, Raising Exceptions, File Handling (I/O), Working with Text and Binary Files, Text Encoding and Decoding, File Handling Best Practices, Using 'with' Statements, Error Handling in File Operations	10
4	**Advanced Python Programming** Modules and Libraries: Creating and Using Modules, Writing Your Own Modules, Importing Modules, Standard Library Modules,: Exploring Built-in Modules (math, datetime), Working with OS and sys Modules, Third-party Libraries and Packages, Using pip for Package Installation, Popular Third-party Libraries (requests, pandas)	8
5	**Python Applications** Data Processing and Analysis: Introduction to NumPy and Pandas: Overview of Pandas, Data Manipulation with NumPy, Creating NumPy Arrays, Data Analysis with Pandas, Working with Data Frames: Data Cleaning and Exploration; Database Applications: Database Connectivity in Python	9
Total Hours		**45**

Textbook :

1 Think Python: How to Think Like a Computer Scientist , Allen B. Downey, Shroff/O‘Reilly , 2016

2 Core Python Programming, R. Nageswara Rao, Dream tech , 2021

References:

1 Core Python Programming, Core Python Programming, W.Chun, Pearson, 2016

2 Introduction to Python, Introduction to Python, Kenneth A. Lambert, Cengage , 2023

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
0.00	0.00	40.00	40.00	10.00	10.00

DR. MEETA JOSHI

Digitally signed by (Name of HOD)

DR. KIRTI DUTTA

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Instructional Method:

1. Interactive classroom sessions
2. Case-based discussions
3. Group projects and simulations

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