

Course Name: **MTech Exec (CS) 2nd Semester**

Subject Code: **CS-6712**

Subject Name: **Data Science**

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### **Aim of the Subject**

To provide students with a rigorous theoretical as well as practical grounding for programming in Python programming language.

### **Learning Outcomes**

The students are expected to learn following after completion of the course:

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### **Unit 1**

Introduction to Python Programming Language: Why and for What Python? Built-in Data Types, Variables, Strings and String methods, Numbers, Basic Input, Output and String formatting, Python literals, Operators: Arithmetic, Comparison, Assignment, Logical, Bitwise, Membership, and Identity, Comments, First Python program, Styling Python code.

### **Unit 2**

List: Basic List operations, Indexing, Slicing, and Matrixes, organizing a list, Working with list and a part of a list, Tuple, Conditional Execution, Boolean Expressions, Conditional Statements with Lists, List Comprehension Expression, While and For Loop, Iterations, Documentation Interlude.

### **Unit 3**

Working with Dictionaries, Functions: How functions communicate with their environment? Returning a result from function, Introduction to Scopes, Arguments, and Comprehensions and Generators.

### **Unit 4**

Introduction to Modules and Packages, some useful Modules, Object-Oriented Programming Concepts: Classes and Objects/Instances, Working with Files, Exception Handling: Anatomy of Exception, Some useful Exceptions.

### **Unit 5**

Python Libraries, Introduction to Scipy, Numpy, Matplotlib, Scikit-Learn and Pandas, Data Preprocessing, Manipulation, and Visualization, Produce Python code to statistically analyze a Dataset.

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**Text Book(s)**

1. Think Python First Edition, by Allen B. Downey
2. Learning Python Fifth Edition, By Mark Lutz

**Reference Material(s)**



Course Name: **MTech Exec (CS) 2nd Semester**

Subject Code: **CS-6223**

Subject Name: **Python Programming**

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**Aim of the Subject**

**Learning Outcomes**

The students are expected to learn following after completion of the course:

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**Unit 1**

**Unit 2**

**Unit 3**

**Unit 4**

**Unit 5**

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**Text Book(s)**

**Reference Material(s)**