

AIML	PROGRAMMING FOR AI AND ML	3	0	2	4
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#### **Learning Outcome:**

- Learn Syntax and Semantics and create Functions in Python.
- Understand Strings and Files in Python.
- Understand Lists, Dictionaries and Regular expressions in Python.
- Implement Object Oriented Programming concepts in Python.
- Build Web Services and introduction to Network and Database Programming in Python.

#### **Course Outcomes:**

- Apply the concept of Decision-making statements, looping constructs, functions for solving basic programs
- Analyze the concepts of Lists, tuples, and error handling mechanisms
- Evaluate a program incorporating all the python language constructs

#### **UNIT – I: Objects, Numbers and Sequences**

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Python Basics, **Objects**- Python Objects, Standard Types, Other Built-in Types, Internal Types, Standard Type Operators, Standard Type Built-in Functions, Categorizing the Standard Types, Unsupported Types  
**Numbers** - Introduction to Numbers, Integers, Floating Point Real Numbers, Complex Numbers, Operators, Built-in Functions, Related Modules

**Sequences** - Strings, Lists, and Tuples, Mapping and Set Types

#### **UNIT – II: Files, Exceptions and Modules**

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**FILES:** File Objects, File Built-in Function [ open ()], File Built-in Methods, File Built-in Attributes, Standard Files, Command-line Arguments, File System, File Execution, Persistent Storage Modules, Related Modules

**Exceptions:** Exceptions in Python, Detecting and Handling Exceptions, Context Management, \*Exceptions as Strings, Raising Exceptions, Assertions, Standard Exceptions, \*Creating Exceptions, Why Exceptions?

**Modules:** Modules and Files, Namespaces, Importing Modules, Importing Module Attributes, Module

#### **UNIT – III: Regular Expressions and Multithread Programming**

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**Regular Expressions:** Introduction, Special Symbols and Characters, Res, and Python

**Multithreaded Programming:** Introduction, Threads and Processes, Python, Threads, and the Global Interpreter Lock, Thread Module, Threading Module, Related Modules

#### **UNIT – IV: Data Analysis Packages**

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Data Analysis Packages, NumPy, SciPy, Matplotlib, Pandas, Sllearn, Regression, Classification, Code a Linear Regression in Python with scikit-learn, Principal Component Analysis (PCA)

#### **UNIT – V: Database Programming**

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Introduction, Python Database Application Programmer's Interface (DB-API), Object Relational Managers (ORMs)