



B.TECH II SEMESTER

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20AD2T05 PYTHON PROGRAMMING

Course Objectives:

- Identify/characterize/define a problem
- Design a program to solve the problem
- Create executable code
- Read most Python code

Course Outcomes:

CO1: Understand the fundamentals of Python programming language.

CO2: Understand Data Structures

CO3: Understand the use of functions in Python

CO4: Understand the Object-Oriented Programming concepts of Python

CO5: Apply regular expressions for different situations.

SYLLABUS

UNIT – I:

Introduction: History of Python, Need of Python Programming, Applications of Python Programming Variables, Assignment, Keywords, Input-Output, Indentation.

Types, Operators, and Expressions: Types – Integers, Strings, Booleans; Operators- Arithmetic Operators, Comparison (Relational) Operators, Assignment Operators, Logical Operators, Bitwise Operators, Membership Operators, Identity Operators, Expressions and order of evaluations Control Flow- if, if-elif-else, for, while break, continue, pass

UNIT – II:

Data Structures Lists – Operations, Slicing, Methods; Tuples, Sets, Dictionaries, Sequences. Comprehensions.

UNIT – III:

Functions – Defining Functions, Calling Functions, Passing Arguments, Keyword Arguments, Default Arguments, Variable-length arguments, Anonymous Functions, Fruitful Functions (Function Returning Values), Scope of the Variables in a Function- Global and Local Variables. Modules: Creating modules, import statements, from. The import statement, name spacing, Python packages, Introduction to PIP, Installing Packages via PIP, Using Python Packages



UNIT – IV:

Object-Oriented Programming OOP in Python: Classes, ‘self-variable’, Methods, Constructor Method, Inheritance, Overriding Methods, Data hiding, Error, and Exceptions: Difference between an error and Exception, Handling Exception, try except for block, Raising Exceptions, User Defined Exceptions

UNIT – V:

Regular expressions: Power of pattern matching and searching using regex in python, Meta characters and Sequences used in Patterns, Password, email, URL validation using regular expression, Pattern finding programs using regular expression.

Text Books:

1. Learning Python, Mark Lutz, O’Reilly
2. Guido van Rossum and Fred L. Drake Jr, —An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011.
3. Reema Thareja, “Python Programming using Problem Solving Approach”, ISBN-13:978-0-19- 948017-3, Oxford University Press, 2017.

Reference Books:

1. Think Python, Allen Downey, Green Tea Press
2. Core Python Programming, W.Chun, Pearson.
3. Introduction to Python, Kenneth A. Lambert, Cengage
4. “Python in easy steps In Easy Steps”, Mike Mc Grath, illustrated edition, In easy steps 2013 publishers.
5. Professional Python Frameworks: Web 2.0 Programming, Dana Moore, Raymond Budd, William Wright, Wrox Publication, ISBN: 978-0-470-13809-0, October 2007.