

AC –
Item No. –

As Per NEP 2020

**Tolani College of
Commerce
(Autonomous)**



Knowledge is Supreme

Title of the Course: Python Programming

Programme: B.Sc(Information Technology) Semester III

Syllabus for 4 credit Course

From the academic year- 2024-2025

| Sr. No. | Heading | Particulars |
|---------|------------------------------------|--|
| 1 | Description of the course : | Python is dynamically typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly procedural), object-oriented and functional programming. It is often described as a "batteries included" language due to its comprehensive standard library. |
| 2 | Vertical : | Major |
| 3 | Type : | Theory and Practical |
| 4 | Credit: | 4 credits (2 Credits = Theory and 2 Credits= Practical work) |
| 5 | Hours Allotted : | 60 Hours |
| 6 | Marks Allotted: | 100 Marks Continuous Evaluation: 40 Semester-End: 60 |
| 7 | Course Objectives: | <ol style="list-style-type: none"> 1. To acquire programming skills in core Python. 2. To acquire Object Oriented Skills in Python. 3. To develop the skill of designing Graphical user Interfaces in Python. 4. To develop the ability to write database applications in Python. |
| 8 | Course Outcomes: | <ol style="list-style-type: none"> 1. Students will be able to develop small applications using basic concepts, values & expressions, various control & conditional statements and Looping. 2. To use and implement built-in functions and User defined Functions along with different string methods. 3. Will be able to use new datatypes such as Lists, Tuples and dictionaries, Create and handle Exceptions and how to deal with files.. 4. Students will be able to develop GUI applications with database connectivity. |

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| 9 | Module 1: Introduction, Variables and Expressions and Conditional Statements(15 hours) |
| | <ul style="list-style-type: none"> • The Python Programming Language, History,features, Installing Python, Running Python program, Debugging ,Syntax Errors, Runtime Errors, Semantic Errors, Experimental,Debugging, Formal and Natural Languages, The Difference,Between Brackets, Braces, and Parentheses. • Values and Types, Variables,Variable Names and Keywords, Type conversion, Operators and,Operands, Expressions, Interactive Mode and Script Mode, Order of Operations. • if, if-else, nested if –else ,for, while. |
| | Module 2: Basics of Functions and Strings(15 hours) |
| | <ul style="list-style-type: none"> • Function Calls, Type Conversion Functions,Math Functions, Composition, Adding New Functions, Definitions and Uses, Flow of Execution, Parameters and Arguments. • Stack Diagrams, Incremental Development, Composition, Boolean Functions, MoreRecursion, Leap of Faith, Checking Types Fruitful Functions and Void Functions, Importing with from, Return Values ,A String Is a Sequence, Traversal with a for Loop, String Slices, Strings Are Immutable, Searching. • Looping and Counting, String Methods, The in Operator,String Comparison, String Operations |
| | Module 3: Lists, Tuples and Dictionaries, Files and.Exceptions(15 hours) |
| | <ul style="list-style-type: none"> • Values and Accessing Elements, Lists are mutable,traversing a List, Deleting elements from List, Built-in List Operators, Concatenation, Repetition, In Operator, Built-in List functions and methods • Tuples, Accessing values in Tuples,Tuple Assignment, Tuples as return values, Variable-length argument tuples, Basic tuples operations, Concatenation,Repetition, in Operator, Iteration, Built-in Tuple Functions Creating a Dictionary, Accessing Values in a dictionary, Updating Dictionary, Built-In Dictionary Functions, Built-in Dictionary Methods,Text Files, The File Object Attributes, Directories • Built-in Exceptions, Handling Exceptions, Exception with Arguments, User-defined Exceptions |
| | Module 4: Regular Expressions , Classes and Objects, Widgets, Layout Management, Look and Feel (15 hours) |
| | <ul style="list-style-type: none"> • Concept of regular expression, various types of regular expressions, using match function. • Overview of OOP (Object Oriented Programming), Class Definition, Creating Objects, Instances as Arguments, Instances as return values, Built-in Class Attributes, Inheritance, Method Overriding, Data Encapsulation, Data Hiding. • Objects, Designing GUI applications with proper Layout Management features, Enhancing Look and Feel of GUI using different appearances of widgets, Introduction to Django, Creating a Project with Django. |

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| 10 | Reference Books: <ol style="list-style-type: none"> 1) Author: <u>Mr. Abhishek Singh</u>, Title: Simplifying Regular Expression Using Python, Publisher: <u>Mr. Zohaib Hasan</u> , Year :April 20,2019 2) Author: Jason Montojo,Title: An Introduction to Computer Science using Python 3 ,Publisher: SPD,Edition: 1st Year: 2014 |
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| 11 | Internal Continuous Assessment: 40% | Semester End Examination : 60% |
| 12 | Continuous Evaluation through: | Practical Assessment |

13 Format of Question Paper:

**Scheme of Evaluation Pattern
Table 1A: Scheme of Continuous Evaluation (CE/Practical)
Scheme of Evaluation Pattern**

| Sub-components | Maximum Marks | Conditions for passing |
|---------------------|---------------|--|
| 3) Practical exam | 30 | b) A learner must be present for each of the sub-components. c) Combined passing criteria |
| 4) Journal and Viva | 10 | |
| Total | 40 | |

Table 1B: Scheme of Semester End Examination (SEE) Evaluation

Question Paper Pattern for Semester End Examination (SEE)

Maximum Marks: 60

Duration: 2 Hrs.

Note: All questions are compulsory. Each question has an internal choice.

| Question Number | Nature of Questions | Maximum Marks |
|-----------------|----------------------|---------------|
| 1) | Attempt any 3 | |
| a) | | 15 |
| b) | | |
| c) | | |
| d) | | |
| e) | | |
| 2) | Attempt any 3 | |
| a) | | 15 |
| b) | | |
| c) | | |
| d) | | |
| e) | | |
| 3) | Attempt any 3 | |
| f) | | |
| g) | | |
| h) | | |
| i) | | |
| j) | | |
| 4) | Attempt any 3 | |

| | | | | | |
|--|--|----|--|----|--|
| | | a) | | 15 | |
| | | b) | | | |
| | | c) | | | |
| | | d) | | | |
| | | e) | | | |