| RGPV (DIPLOMA WING) BHOPAL | OBE CURRICULUM FOR THE COURSE | FORMAT- 3 | Sheet No. 1/3 |
|---|---|---|---|

| Branch | Computer Science and Engineering | Semester | 3rd |
|---|---|---|---|
| Course Code | | Course Name | Python Programming |

| Course Outcome 1 | Interpret basic constructs of python programming | Teach Hrs | Marks |
|---|---|---|---|
| Learning Outcome 1 | **Describe steps to setup python development environment, features and modules.** | 8 | 5 |
| Contents | Features and,applications of python, Basic structure of python program, steps of installing/setting python, Integrated Development and Learning Environment (IDLE), creating, editing, running python program with IDE, concept of modules in python, from/import statement, Module Search Path, concept of PYTHONPATH and sys.path variables**,** Renaming/alias a module, python package-management system (pip), Namespaces and Scope in Python, built-in/global/local namespace, datetime module. | | |
| Method of Assessment | Lab Assessment(File) | | |
| Learning Outcome 2 | **Explain different data types, operators, and user defined functions in Python.** | 12 | 10 |
| Contents | Keywords,creating variables, global variables. Various data types, type conversion. Concept of input output. Unary, binary and ternary operators. Arithmetic operators, Assignment operators, Relational operators, Logical operators, Bitwise operators. Single line and multiline comments. User defined functions. | | |
| Method of Assessment | Quiz | | |
| Learning Outcome 3 | **Write programs using basic constructs.** | 12 | 10 |
| Contents | Working on conditional statements (if-else-elseif) and their flow chart. Iterative statements (for, while) and their flow chart. Loop control statements - break, continue, pass. Use math module. | | |
| Method of Assessment | Lab Assessment(File) | | |
| Course Outcome 2 | **Develop programs using structure types and exception handling.** | *Teach Hrs* | *Marks* |
| Learning Outcome 1 | **Use built in functions to manipulate strings and lists.** | 10 | 10 |
| Contents | Create list, indexing in list, access list items, add, remove and modify item value. Iterating over list, check if item exists in list, length of list, copy list. Join two lists, sort, and reverse a list. Working with strings, multiline strings. String indexing, string slicing, string length, escape character, search and split operation in string, convert object to string using str(). | | |
| Method of Assessment | Programming | | |
| Learning Outcome 2 | **Write programs using tuples, dictionaries and sets.** | 7 | 5 |
| Contents | Create tuple, indexing in tuple, access items of tuple. Converting tuple to list. Iterating over tuple, check if an item exists in tuple. Tuple length, join two tuples. Create set, access items of set, add items to set, length of set. Remove an item in set, join two sets, and update set. Union operation of set. Create | | |

| | | | |
|---|---|---|---|
| | dictionary, keys-value pair in dictionary. Add, remove and access items of the dictionary. Change item value. Iteration over dictionary, Check if key exists, length of dictionary, copy dictionary. | | |
| **Method of Assessment** | Lab Assessment(File) | | |
| **Learning Outcome 3** | **Use exception handling, numpy module to manipulate arrays.** | 11 | 10 |
| **Contents** | Need for Exception Handling. Try, except and finally statement. Exception class, Catching Specific Exceptions Raising exceptions. Try with else clause. numpy module - create arrays, indexing in array, accessing arrays, slicing arrays, modify and copy array. Create view of array. Iterating over array, join two arrays, split arrays, using searchsorted and sort method. | | |
| **Method of Assessment** | Quiz | | |
| **Course Outcome 3** | **Apply the concepts of classes, file handling and GUI designing.** | Teach Hrs | Marks |
| **Learning Outcome 1** | **Write programs using classes, objects, constructors and access class members**. | 13 | 15 |
| **Contents** | Basic syntax and structure of a Class. Declare/define Variables and methods in a class. Class or Static Variables in class. Creating objects and access class members using dot(.) operator. Constructors in class, default constructor, parameterized constructor, self keyword, destructors in python. | | |
| **Method of Assessment** | Programming | | |
| **Learning Outcome 2** | **Develop GUI using tkinter interface.** | 10 | 10 |
| **Contents** | Basics of tkinter module. Creating main window, configure properties of main window such as -title, size. Tk(), mainloop() methods. Adding basic widgets - Button, Label, Entry, Text, Canvas, Frames. Arranging widgets using geometry manager classes. Drawing shapes such as - lines, oval, rectangle etc on canvas. | | |
| **Method of Assessment** | Lab Assessment(File) | | |
| **Learning Outcome 3** | **Use built in library to perform file/directory related operations.** | 12 | 15 |
| **Contents** | Perform basic file/directories related operations such as - create, copy, move, or rename. reading and writing file contents. Basic concept of Logging. | | |
| **Method of Assessment** | Programming | | |