**Lesson Plan**

**Name of faculty : Virender Singh** (Prog.)

**Discipline :** Computer Engineering

**Semester :** 5th

**Subject :** Python

**Lesson Plan Duration : 07-09-20 to 05-02-21**

**Work Load(Lecture/ Practical) per week (in hours):** Lectures-03, Practicals – **06**

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| **Week** | **Theory** | **Practical** |
| **Topic**  **(including assignment /**  **test)** | **Topic** |
| 1st | **Introduction:**  Brief History of Python  Python Versions  Installing Python  Environment Variables  Executing Python from the Command Line  IDLE  Editing Python Files  Python Documentation  Getting Help  Dynamic Types  Python Reserved Words  Naming Conventions | 1. Getting started with Python and IDLE in interactive and batch modes |
| 2nd | Basic Python Syntax   * + - Basic Syntax     - Comments     - String Values     - String Methods     - The format Method     - String Operators     - Numeric Data Types     - Conversion Functions     - Simple Output     - Simple Input     - The % Method | 2. What do the following string methods do?   * + lower   + count   + replace |
| 3rd | Language Components   * Indenting Requirements * The if Statement * Relational and Logical Operators * Bit Wise Operators * The while Loop * break and continue * The for Loop | 3. Write instructions to perform each of the steps below  (a) Create a string containing at least five words and store it in a variable.  (b) Print out the string.  (c) Convert the string to a list of words using the string split method.  (d) Sort the list into reverse alphabetical order using some of the list methods (you might need to use dir(list) or help(list) to find appropriate methods).  (e) Print out the sorted, reversed list of words. |
| 4th | Collections   * + - Introduction     - Lists | 4. Write a program that determines whether the number is prime.  What is your favorite number? 24  24 is not prime  What is your favorite number? 31  31 is prime |
| 5th | * + - Tuples     - Sets     - **Dictionaries** | 5. Find all numbers which are multiple of 17, but not the multiple of 5, between 2000 and 2500? |
| 6th | SESSIONAL TEST | SESSIONAL TEST |
| 7th | * + - **Sorting Dictionaries**     - Copying Collections | 6. Swap two integer numbers using a temporary variable. Repeat the exercise using the code format: a, b = b, a. Verify your results in both the cases. |
| 8th | Functions   * + - Introduction     - Defining Your Own Functions     - Parameters     - Function Documentation | 7. Find the largest of n numbers, using a user defined function largest(). |
| 9th | * + - Keyword and Optional Parameters     - Passing Collections to a Function     - Variable Number of Arguments     - Scope | 8. Write a function myReverse() which receives a string as an input and returns the reverse of the string. |
| 10th | * + - Functions - "First Class Citizens"     - Passing Functions to a Function     - map     - filter     - Mapping Functions in a Dictionary     - Lambda     - Inner Functions     - Closures   Sessional test | 9.  Check if a given string is palindrome or not. |
| 11th | Modules   * + - Modules     - Standard Modules - sys     - Standard Modules - math     - Standard Modules - time   The dir Function | 10.  WAP to convert Celsius to Fahrenheit |
| 12th | Exceptions (06 Periods)   * + - Errors     - Runtime Errors     - The Exception Model     - Exception Hierarchy     - Handling Multiple Exceptions     - Raise     - assert | 11.  Find the ASCII value of charades |
| 13th | Input and Output   * + - Introduction     - Data Streams     - Creating Your Own Data Streams     - Access Modes     - Writing Data to a File     - Reading Data From a File     - Additional File Methods     - Using Pipes as Data Streams   Handling IO Exceptions | 12.  WAP for simple calculator |
| 14th | Classes in Python   * + - Classes in Python     - Principles of Object Orientation     - Creating Classes     - Instance Methods     - File Organization     - Special Methods     - Class Variables     - Inheritance     - Polymorphism | REVISION & PRACTICE |
| 15th | Regular Expressions   * + - Introduction     - Simple Character Matches     - Special Characters     - Character Classes     - Quantifiers     - The Dot Character     - Greedy Matches     - Grouping     - Matching at Beginning or End     - Match Objects     - Substituting     - Splitting a String     - Compiling Regular Expressions     - Flags   Sessional Test | REVISION & PRACTICE |