SCRIPTING LANGUAGES LABORATORY

Course Code: **Credits: 0:1:1**
Prerequisites: Object Oriented Programming with Java   **Contact Hours: 28**
Course Coordinator: Karthik V

Course Content:

PART A
Create an HTML Page with Javascript event handling that will:
1. a) Add two click event listeners to the same button.   b)Has a List of food items. The item selected must be displayed in an alert box.
2. a)Add at least two mouse event listeners to a GUI Component.   b) Changes the background colour of a textbox when in focus and out of focus
3. a) Add different colours to a textbox when the a key is pressed up and down.   b)Change the background colour of loaded page
4. Create a form with two textboxes. Have a button which when clicked will display the value entered in the textboxes.
5. Create a textbox to enter a number. A button which when pressed will display "true" if the entered number is divisible by 3 or 7 and "false" if it is not
6. Create two textboxes to enter the numbers. Have two buttons "add" and "Multiply" to display the result of the operation of the entered numbers.
PART B
1. Introduction to Python: Write Python programs to do the following: **a)** Read a list of elements. Create a new list having all the elements minus the duplicates (Use functions). Use one-line comprehensions to create a new list of even numbers. Create another list reversing the elements.   **b)** Write a python program to count the frequency of words in a given file.   **c)** Read a list of numbers. Uses a recursive function to find the maximum of 'n' numbers.
2. Introduction to Python Functions: Write a temperature converter python program, which is menu driven. Each such conversion logic should be defined in separate functions. The program should call the respective function based on the user's requirement. The program should run as long as the user wishes so. Provide an option to view the conversions stored as list of tuples with attributes - from unit value, to unit value sorted by the user's choice (from-value or to-value).
3. Python Classes: Write a python class to reverse a sentence (initialized via constructor) word by word. <u>Example</u>: "I am here" should be reversed as "here am I". Create instances of this class for each of the three strings input by the user and display the reversed string for each, in descending order of number of vowels in the string.

4.	**Python for Data Science:** Load *Titanic Dataset* into one of the data structures (*NumPy* or *Pandas*). Perform data pre-processing on this dataset. Create dataframes, perform computations and visualize the results appropriately.
5.	**Python File Handling & List Comprehension**: Write a python program to read contents of a file (filename as argument) and store number of occurrences of each word in a dictionary. Display the top 10 words with the most number of occurrences in descending order. Store the length of each of these words in a list and display the list. Write a one-line reduce function to get the average length and one-line list comprehension to display squares of all odd numbers and display both.

Reference Books:
1. Paul Barry, Head First Python, O"Reilly Publication, 2010.
2. Shelley Powers, Learning JavaScript, O"Reilly Publication, 2nd Edition, 2012.

Course Outcomes (COs):	
At the end of the course, student will be able to -	
1.	Use internal and external Python libraries, data structures, functions inherent to Python in-order to handle data and use JavaScript to develop command line applications.(PO-1, 2, 5, 6, 9,10,12) (PSO-1, 2, 3)
2.	Apply Python as a scripting language to analyze huge datasets, apply data science related statistics on datasets (PO-1, 2, 5, 6, 9,10, 12) (PSO-1, 2, 3)
3.	Design and develop a simple web application with client-side JavaScript, server-side Python, using Flask. (PO-1, 2, 5, 6, 9,10, 12) (PSO-1, 2, 3)

Marks (50)