Course Title :Data Analytics Laboratory			
Course Code: P18CSL66	**Semester : 6**	**L:T:P - 0 : 0 : 3**	**Credits: 1.5**
Contact Period : Practical :3 Hr/Week, Exam: 3Hr		**Weightage :CIE:50% SEE:50%**	

Course Content

1. Introduction to R & Getting started with Installation of R
2. Execute the R commands for
   a) Entering Inputs, Evaluation, R objects & Numbers
   b) Attributes, Creating Vectors, Mixing Objects,
   c) Explicit Correction, Matrices, List
   d) Factors, Missing Vales, Data frames
3. Write R Code for bellow functions
   a. write.table, for writing tabular data to text files (i.e. CSV) or connections
   b. writeLines, for writing character data line-by-line to a file or connection
   c. dump, for dumping a textual representation of multiple R objects
   d. dput, for outputting a textual representation of an R object
   e. save, for saving an arbitrary number of R objects in binary format (possibly compressed) to a file.
   f. serialize, for converting an R object into a binary format for outputting to a connection (or file).
4. Write a R Program to extract the subsets of R object
   a. The [operator always returns an object of the same class as the original. It can be used to select multiple elements of an object
   b. The [[operator is used to extract elements of a list or a data frame. It can only be used to extract a single element and the class of the returned object will not necessarily be a list or data frame.
   c. The $ operator is used to extract elements of a list or data frame by literal name. Its semantics are similar to that of [[
5. Perform Vector Operations & Vectorized Matrix Operations & also perform Date & time operations
6. Write R code AND Implement Managing Data Frames with the dplyr package
7. Write an R code for implementation of bellow control strictures
   a. if and else: testing a condition and acting on it
   b. for: execute a loop a fixed number of times
   c. while: execute a loop while a condition is true
   d. repeat: execute an infinite loop (must break out of it to stop)
   e. break: break the execution of a loop
   f. next: skip an interation of a loop
8. Write R Code for implement the following functions
   a. Functions can be passed as arguments to other functions. This is very handy for the various apply funtions, like lapply() and sapply().
   b. Functions can be nested, so that you can define a function inside of another function
9. Write R code for implementing of bellow
   R has some functions which implement looping in a compact
   a. lapply(): Loop over a list and evaluate a function on each element
   b. sapply(): Same as lapply but try to simplify the result

c. apply(): Apply a function over the margins of an array
d. tapply(): Apply a function over subsets of a vector
e. mapply(): Multivariate version of lapply

10. Implement R code for following conditions
    a. message: A generic notification/diagnostic message produced by the message() function; execution of the function continues
    b. warning: An indication that something is wrong but not necessarily fatal; execution of the function continues. Warnings are generated by the warning() function
    c. error: An indication that a fatal problem has occurred and execution of the function stops. Errors are produced by the stop() function.
    d. condition: A generic concept for indicating that something unexpected has occurred; Programmers can create their own custom conditions if they want.

Reference:

1. R Programming for Data Science by Roger D. Peng, Lenpub Publishing 20/7/2015