R beginner workshop for data science

Course Title	R beginner workshop for data science
Course Category	Pedagogy / Specialized Skills
Relevant Discipline(s)	Engineering / Science / Commerce / BCA / MCA / Medical
Duration of course in equivalent integer no. of days (min 3 days, 1 day = 6 hrs of lectures/hands on sessions)	3 days 6 hrs of lectures / hands on session on each day / problem-solving-session / feedback on each day
Proposed dates	28 - 30 January 2021

Brief Course Description and Course Contents
R (http://www.r-project.org/) is a Free/Libre and Open Source Software (FLOSS) - a well organized and sophisticated package - that facilitates data analysis, modelling, inferential testing, and forecasting. It is a user-friendly software that allows creating new function commands to solve statistical problems. It runs on various UNIX platforms (and similar systems such as LINUX), Windows and Mac OS X. R is one of the most preferred open-source languages for analytics and data science. R's cross-platform compatibility and its capacity to handle large and complex data sets make it an ideal tool for academicians to analyze data in their labs. R is useful for simple calculations, matrix calculations, differential equations, optimization, statistical analysis, plotting graphs, etc. Also, it is helpful for anybody who wishes to undertake extensive statistical computations and data visualization. At the end of this workshop, participants will be able to: - Use the R script   - Import and merge data   - Create dataframes and matrices   - Plot bar chart, pie chart and scatter plot   - Use ggplot2 and aesthetic mapping in ggplot2   - Do data formatting using dplyr Package   - Use functions in dplyr Package   - Do programming in R (conditional operations and functions)   - Use pipe Operator   - Compute basic Statistics (mean, STD etc.)   - Use the regression line in R

- Create Rmarkdown files in R
- Get an exposure to clustering and classification

The workshop will be conducted using a mix of pre-recorded spoken tutorial videos with side by side learning methods and live lectures. Several practice problems will also be provided after every topic, followed by discussions to better understand each topic.

All participants will get the R software, Spoken Tutorials on R, copies of our slides, video recording of all lectures, R code for several hundred science and engineering textbooks, R Lab Migration documents with code and R Case Studies. Using these, all who are interested in conducting R workshops by themselves can do so. They will also get exposed to the collaborative content creation activity of the FOSSEE Project.

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FOSSEE team members will help conduct the hands-on sessions.