Detail Syllabus and Lecture-wise break-up

CS Data Analytics **3-1-0 Credits: 4** **[Elective for UG/PG level]**

1.	Data management and indexing	**[2 hours]**
2.	Data representation and characterization	**[2 hours]**
3.	Basic statistical analysis tools and models	**[8 hours]**
4.	Data analytics programming languages – R, SPSS, Matlab, Python	**[4 hours]**
5.	Association rules, correlations	**[4 hours]**
6.	Regression models	**[4 hours]**
7.	Clustering	**[4 hours]**
8.	Classification models	**[4 hours]**
9.	Feature engineering and visualization	**[2 hours]**
10.	Scalable and parallel computing	**[2 hours]**
11.	Case study and project	**[4 hours]**
	Total:	**40 hours**

Text and reference books:

1. An Introduction to Statistical Learning: with Applications in R, G James, D. Witten, T Hastie, and R. Tibshirani, Springer, 2013
2. Software for Data Analysis: Programming with R (Statistics and Computing), John M. Chambers, Springer
3. Mining Massive Data Sets, A. Rajaraman and J. Ullman, Cambridge University Press, 2012
4. The Elements of Statistical Learning, Data Mining, Inference, and Prediction (2nd Edn.), Trevor Hastie Robert Tibshirani Jerome Friedman, Springer, 2014
5. Advances in Complex Data Modeling and Computational Methods in Statistics, Anna Maria Paganoni and Piercesare Secchi, Springer, 2013
6. Data Mining and Analysis, Mohammed J. Zaki, Wagner Meira, Cambridge, 2012