Special Centre for Disaster Research
(In collaboration with NIDM, MHA Govt of India)
Jawaharlal Nehru University
New Delhi, INDIA

Course Title: Big Data Analytics

Course Objective:

The course objective is to understand how the data related to disasters, which happens to be Big, can be captured, integrated, stored, accessed, analysed and visualized. Several storage, processing and querying approaches are discussed. Data analytics and visualization techniques are discussed. Further, how Big data analytics can used for disaster mitigation, preparedness, response and recovery is discussed.

Course Content:

Introduction to Big data, Big Data Architecture and Capabilities: Storage, Management, Database, Processing, Data Integration; Large Scale File System: Distributed File System, MapReduce, HDFS and Hadoop; Distributed File System, HDFS; Data Management Techniques to Store Data Locally and in Cloud Infrastructures; NoSQL; Introduction to Data Analytics, Predictive Analysis and Business Intelligence, Mining Big Data, Advanced Data Analytics and Machine Learning, Big Data Streams and Real Time Predictive Analysis, Tools and Visualization, Link Analysis, Web Analytics, Collaborative Filtering, Social Network Analysis, Issues, Challenges and Opportunities of Big Data Analytics in disaster mitigation, preparedness, response and recovery.

Suggested Readings:

1. Rajaraman, A., Ullman, J. D., Mining of Massive Datasets, Cambridge University Press, United Kingdom, 2012
2. Erl, T., Khattak, W., Buhler, P., Big Data Fundamentals: Concepts, Drivers and Techniques, Pearson, 2016
3. Berman, J.J., Principles of Big Data: Preparing, Sharing and Analyzing Complex Information, Morgan Kaufmann, 2014
4. Marz, N., Warren, J., Big Data: Principles and best practices of scalable real-time data systems, Manning Publishers, 2016
5. Runkler, T.A., Data Analytics: Models and Algorithms for Intelligent Data Analysis, Springer Vieweg, 2016
6. Baesens, B., Analytics in a Big Data World: The Essential Guide to Data Science and its Applications, Wiley, 2014
7. Dean, J., Big Data, Data Mining and Machine Learning, Wiley India Private Limited, 2014
8. Barlow, M., Real-Time Big Data Analytics: Emerging Architecture, O Reilly, 2013