PIT6J006 BIG DATA ANALYTICS

Module 1 (8 Hours):
Introduction to Big Data Analytics: Big Data Overview, Characteristics, Traditional versus Big Data Approaches, State of the Practice in Analytics, Key Roles for the New Big Data Ecosystem and its Challenges, Example of Big Data Analytics, Case Study on Clickstream Analytics.

Module 2 (10 Hours):
Data Analytics Lifecycle: Overview, Discovery, Data Preparation, Model Planning, Model Building, Communicate Results, Operationalize, Case Study on Global Innovation Network and Analysis (GINA).

Module 3 (12 Hours):
Advanced Analytical Theory and Methods: Overview of Clustering Techniques, K-Means, Hierarchical Clustering, Partitioning Methods, Clustering Streams, Overview of Association Rules, Apriori Algorithm, Applications of Association Rules, Transactions in Grocery Store Example, Classification: Decision Trees - Overview of a Decision Tree - The General Algorithm - Decision Tree Algorithms - Evaluating a Decision Tree - Decision Trees in R - Naïve Bayes - Bayes' Theorem - Naïve Bayes Classifier.

Module 4 (10 Hours):
Advanced Analytics – Technology and Tools: Introduction to Hadoop, Core Hadoop Components, Hadoop Ecosystem, Physical Architecture, Limitations of Hadoop, Introduction to NoSQL, NoSQL Business Drivers, NoSQL Case Studies (Amazon DynamoDB, Googles' BigTable, MangoDB), NoSQL Data Architectural Patterns, Using NoSQL to Manage Big Data, Introduction to MapReduce, Algorithms using MapReduce.

TEXT BOOKS:
1. EMC Education Services, "Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data", Wiley publishers, 2015.
2. RadhaShankarmaniand M Vijayalakshmi, Big Data Analytics, 2nd Edition, Wiley India Pvt. Ltd., 2017.

REFERENCE BOOKS:
1. AnandRajaraman and Jeffrey David Ullman, "Mining of Massive Datasets", Cambridge University Press, 2012.
2. David Loshin, "Big Data Analytics: From Strategic Planning to Enterprise Integration with, Techniques, NoSQL, and Graph", 2013.
3. Dan McCreary and Ann Kelly "Making Sense of NoSQL" – A guide for managers and the rest of us, Manning Press.