

Certificate Programme on Data Analytics

for IT Officials of

Hindustan Petroleum Corporation Ltd.

An Outline of the Certificate Programme

by

Dr. Anupam Ghosh

and

Dr. Chandra Sekhar Mishra

(Coordinators)



Vinod Gupta School of Management
Indian Institute of Technology Kharagpur
Kharagpur 721 302

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Detailed Course Curriculum

The detailed curriculum is provided as under:

Module 1: Essentials of Statistics	# of Hours
<ol style="list-style-type: none"> 1. Statistical Structures in Data & Data Visualization - graphs and tables 2. Descriptive Statistics - Measures of Central Tendency 3. Computing for Data Sciences I: Probability 4. Computing for Data Sciences II: Sampling & Tests for Significance 5. Essentials of Calculus and Matrix Algebra 	25
Module 2: Data Mining & Programming	
<ol style="list-style-type: none"> 1. Basics of Data Mining 2. Programming with 'R' and 'Python' 3. Big Data Analytics and working with Big Data 4. Image Analytics 	25
Module 3: Machine Learning (ML) and Business Forecasting	
<ol style="list-style-type: none"> 1. Supervised and Unsupervised Machine Learning vs. Deep Learning 2. Supervised and Unsupervised Machine Learning 3. Full fit regression, forward regression, backward regression, step-wise regression 4. Decision tree, Random forest, Gradient boosting, Adaptive Boosting 5. Neural Network, Support Vector Machine 6. KNN, Naive Bayes 7. Ensembling 	40
Module 4: Application of Analytics	
<ol style="list-style-type: none"> 1. Data analytics in Marketing: designing the market basket; targeting and segmenting 2. Data analytics in Supply Chain Design 3. Operations analytics: data for production design 4. Finance analytics: data analytics for financial decision making 	20
Module 5: Applied Management Research Project (AMRP)	
Project in an area of concern/interest of the organization - application of knowledge in analytics for business decision making	20