

Detailed Course Information: Data and Analytics at edge and core

Sl. No.	Data Type	Comments
1	Course Name	Data and Analytics at edge and core
2	Content Source	Business Analytics, The Science of data driven decision making by Professor Dinesh U from IIM Bangalore
3	Brief Description / Introduction of Course	<i>The goal of this course is to explain in detail the basic foundational concepts that comprise data science and business analytics. It covers right from basic understanding of the data science and business analytics concepts, understanding of the data science project journey to foundational understanding of supervised and unsupervised machine learning concepts. It is given from the perspective of need of understanding of the technical and non technical audience.</i>
4	Why do we need this course?	With the transformation of entire industries via data and AI, the core to undertaking a data science project is to understand what it entails technically and what are the actual steps of the data science journey. This course covers a basic introduction to the same which can be used as a foundation course for a manager to understand data science and analytics.
5	Learning Outcomes	<ul style="list-style-type: none"> • <i>Understanding the notions of data science, machine learning, artificial intelligence and business analytics</i> • <i>Understanding the various types of business analytics – descriptive, predictive, prescriptive</i> • <i>Understanding the data science journey and the various steps involved – understanding business domain, data pre processing, model building and model deployment</i> • <i>Understanding machine learning – supervised and unsupervised</i> • <i>Understanding examples and applications of supervised learning algorithms – Regression, Decision Trees and Forecasting</i> • <i>Understanding examples and applications of unsupervised learning algorithms – Dimensionality reduction (PCA), Clustering and Association rules</i>
6	Course Length	<i>4 Modules, 4th module in 2 parts</i>

7	Estimated Effort	<i>4 hours (including homeworks and Q&A sessions)</i>
8	Skills Acquired:	
	Module 1: A world transformed by Data and Analytics	Vocabulary around data science, AI, Machine learning, introduction to analytics, the data science project, supervised and unsupervised machine learning
	Module 2: Leveraging Data and Analytics as the competitive edge	Detailed look at business analytics – descriptive, predictive and prescriptive analytics
	Module 3: Strategic implementation of Data and Analytics for the competitive edge	Understanding of the data science project and its various steps – domain knowledge & problem selection, data pre processing, model building, model selection, model deployment
	Module 4: Algorithms in action for Data Analytics at edge and core	Deep delve into supervised and unsupervised learning with some learning of a few algorithms. Supervised learning – Regression, Decision Trees, Forecasting Unsupervised learning – Clustering, Association rules, Dimensionality reduction (PCA)

Module 1: A world transformed by Data and Analytics

Lecture	Video Name
Lecture 1	Data and Analytics in the 21 st Century
Lecture 2	Business Analytics and Data Science
Lecture 3	Understanding the Data Science Project
Lecture 4	Artificial Intelligence and Data science in action
Key Terms	<i>Data Science, Business Analytics, Machine Learning, Artificial Intelligence</i>

Module 2: Leveraging Data and Analytics as the competitive edge

Lecture	Video Name
Lecture 1	Understanding Business Analytics
Lecture 2	Why Analytics
Lecture 3	Descriptive Analytics
Lecture 4	Predictive Analytics

Lecture 5	Prescriptive Analytics
Key Terms	<i>Business Analytics, Descriptive Analytics, Predictive Analytics, Prescriptive Analytics</i>

Module 3: Strategic implementation of Data and Analytics for the competitive edge

Lecture	Video Name
Lecture 1	Implementation of a Data Analytics project – the beginning
Lecture 2	Data Pre-processing for meaningful insights
Lecture 3	Building and Selecting an Analytical model
Lecture 4	Deploying a Data Analytical model
Key Terms	<i>Data Science Project, Data Pre-Processing, Feature Engineering, Model Building, Model Selection, Model Deployment</i>

Module 4: Algorithms in action for Data Analytics at edge and core

Part 1:

Lecture	Video Name
Lecture 1	Supervised Learning
Lecture 2	Regression models
Lecture 3	Forecasting
Lecture 4	Decision Trees
Key Terms	<i>Supervised Learning, Linear Regression, Logistic Regression, Decision Trees, Forecasting</i>

Part 2:

Lecture	Video Name
Lecture 1	Unsupervised learning
Lecture 2	Clustering models
Lecture 3	Association rules
Lecture 4	Dimensionality reduction
Key Terms	<i>Unsupervised Learning, Clustering Association Rules, Dimensionality reduction, Market Basket Analysis, PCA</i>