Program Name: Data Science and Machine Learning Overview		
Session	**Objectives**	**Program Structure**
Introduction To Data Science 1. What is Data Science ? 2. Data Science team structure 3. Data Science stages 4. Machine Learning and data science	Introduction to data science discipline as an approach to extract hidden patterns from data Skills required in Data Science, Structure of data science team	Presentations, discussions
Introduction to Machine Learning 1. What is Machine Learning ? 2. Why Machine Learning 3. Requisites for Machine Learning	Introduce participants to machine learning concept Applications of machine learning with examples Pre-requisites for machine learning	Presentations, discussions, Case studies on implementation of machine learning
Preparing for ML projects 1. Defining the objectives 2. Identifying the required data items 3. Identifying sources of data 4. Data cleansing 5. Preparing data for ML	Introduce the approach to machine learning project with focus on clarity of objectives, identifying sources of data, preparing data for analytics Hadoop stack and its applications	Presentations, discussions, hands on?
Brief introduction to descriptive and inferential statistics 1. Concepts of statistical research 2. Brief introduction to inferential statistics	Equip participants with a conceptual level knowledge of statistics to enable them to interpret the results of machine learning projects	Presentations, discussions
Introduction to Machine Learning 1. Patterns in data 2. Supervised 3. Unsupervised machine learning 4. Challenges of machine learning	To help participants understand what patterns in data mean To familiarize participants with the two broad classification of machine learning styles, their applicability, requirements of each type Concepts of over fitting / under fitting and generalization	Presentations and discussion on live case studies
Supervised Learning Methods 1. Linear regression 2. Decision trees 3. Linear classification 4. Support Vector Machines	Introduce participants to supervised learning approach with focus on model generation through training data testing the model improving the accuracy of the model applications of supervised learning	Presentations, discussions and hands-on coding to implement a POC
Unsupervised Learning Methods 1. Clustering 2. Artificial Neural Networks 3. ANN with feedback loops	To explain concepts unsupervised machine learning. Introduce audience to how systems learn on their own	Presentations, discussions and demos
Machine Learning Project Pattern matching and recommendation systems	To introduce participants to recommendation engines, how online retail shops use it to maximize revenues, exceed customer expectations	Presentations, discussions and hands-on