Cloud Computing with AWS (Amazon Web Services)

Phase I	Tentative Hours/Day ➡ 2/3 hours	
	Day 0	**Informal Discussion** 1. Undestanding the Technology Hype Cycle. 2. Need of learning - knowledge is the key 3. A sample career guide map 4. Pre-requisites for hands-on in Cloud and Big Data
	Day 1	1. Cloud - What? Why? Where? History and Evolution of Cloud Computing 2. Virtualization - A Primer 3. AWS - An Introduction with Core services (Iaas, PaaS and SaaS)
	Day 2	1. AWS Compute - The Elastic data center EC2 2. AWS Compute - Firewall and Accessing VM 3. Hands on - Build our first website 4. Monitoring EC2 with CloudWatch - an Introduction
	Day 3	1. AWS Storage - Understand S3 2. AWS Storage - Access S3 from EC2 via Roles 3. Hands on S3 4. Understand Serverless 4. AWS VPC - an Introduction
	Day 4	1. AWS IAM 2. AWS Relational Database Service - RDS 3. AWS Biiling and Alerts 4. Hands on IAM, Billing and RDS(Optional)

Phase II & III
1. EC2 - Load Balancing 2. EC2 - Auto Scaling 3. S3 - Replication 4. S3 - Lifecycle 5. CloudWatch - Custom Metrics 6. Virtualization with Networking features 7. RDS with Multi A-Z Deployment + Read Replica 8. Serverless - S3 static website and Lambda 9. AWS Access programmatically - AWS Cli, SDK 10. VPC - Introduction to networking 11. VPC - Subnet, Internet Gateway, NACL (Network Access Control) 12. VPC - Advanced (Peering, VPN, Gateways) 13. CloudFormation, Elasticache, Content Delivery Networks 14. Governance, DR (Disaster Recovery), Best Practices 15. What is next? DevOps and Elastic Beanstalk

Big Data with Cloudera Distribution

Phase I	Tentative Hours/Day ⇒ 2/3 hours	
	Day 1	1. What is really Big Data? 2. Is there really a Use Case for Big Data? 3. A brief history of Big Data 4. Introduction to Google Cloud(GCP) 5. Setting up a single node cluster in GCP 6. Big Opportunities
	Day 2	1. Hadoop - Learn concepts with example 2. HDFS Architecture and Benefits 3. Hands on - HDFS Commands 4. Divide and Conquer - Introduction to Mapreduce
	Day 3	1. Mapreduce Examples 2. Pig Introduction 3. Pig Latin expressions/ Pig Scripts 4. Hands on - Pig Scripts
	Day 4	1. Hive Introduction 2. Hive QL Commands 3. Hands on - HiveQL 4. Pig Vs. Hive Vs. RDBMS

Phase II & III

1. **MapReduce in depth with examples**
2. **Hive and Pig advanced with Optimization**
3. **Sqoop and Flume**
4. **NoSQL Primer**
5. **Understanding MongoDB with examples**
6. **Understanding Neo4J with examples**
7. **Spark Introduction**
8. **Spark Architecture**
9. **Introduction to Scala**
10. **Spark Hands on with Scala/Python**
11. **Spark SQL and ML Introduction**

Introduction to Machine Learning using Python

Phase I	Tentative Hours/Day ⇒ 2 hours (+ 1 Hour)	
	Day 0	**Informal Discussion** 1. Brief history of machine learning. 2. It's application in today's world. 3. Overview of related subjects like Analytics, Data mining. 4. Choice of different programming languages like R, Python, Matlab, Octave. 5. Career options
	Day 1	1. Brief history of Python. 2. Prerequisites, installation & basic overview. 3. Introduction to the Python programming language.
	Day 2	1. Types of object. 2. Important functions and operators. 3. Hands-on.
	Day 3	1. Recap of day 2. 2. Walking through some examples. 3. Simple program asignments.
	Day 4	1. Recap of day 3. 2. Introduction to some important packages for machine learning / analytics. 3. Importing packages & libraries.
	Day 5	1. Recap of day 4. 2. If else block, while block, for loop. 3. Hands-on based on real-life like scenario.

Introduction to Machine Learning

Phase I	Tentative Hours/Day ⇨ 2 hours(+ 1 Hour)	
	Day 6	1. What is machine learning? 2. Different types of machine learning. 3. Some real life examples.
	Day 7	1. Supervised learning. 2. Intution of supervised learning. 3. Demonstration with simple examples.
	Day 8	1. Unsupervised learning. 2. Intution of unsupervised learning. 3. Demonstration with simple examples.

Phase II & III

1. **Detailed understanding of supervised learning.**
2. **How gradient descent works**
3. **Introduction to neural network.**
4. **Understanding and importance of normalization.**
5. **Understanding and importnace of regularization.**
6. **Detailed understanding of unsupervised learning.**
7. **How to tune and validate model.**
8. **Introduction to reinforcement learning.**
9. **Introduction to deep learning.**