

## COURSE CONTENT

<b>Aryabhatta College</b>			
<b>Associate Data Analytics Program – 2019 (100 Hrs.)</b>			
S.N	Module	Duration	Topics to be Covered
1	<b>SQL (2 hrs.)</b>	1 hr	Basics of Database, Types of Databases, DDL, DML, Select, Insert, Update, Delete
		1 hr	Joins, nth highest
			<b>Assessment of SQL</b>
2	<b>R (24 hrs.)</b>	2 hrs	Vector (Create, Insert, update, delete, mathematical operation, recycling, slicing, indexing, vector operations)
		2 hrs	Matirx( Create, Insert, update, delete, mathematical operation, slicing, indexing,)
		2 hrs	Array( Create, Insert, update, delete, mathematical operation, slicing, indexing,)
		2 hrs	List (Create, insert, update, delete, slicing)
		2 hrs	DataFrame (create, insert, update, delete, mathematical operations)
			<b>First Assessment of R</b>
		1 hr	Writting SQL queries on R dataframe
		3 hrs	Functions (Mathematics, Statistical, Text, Date, objects, search functions (100 functions))
		2 hrs	Uploading files (xls, txt, csv, json, pdf, xml) in R
		2 hrs	Different type of Graphs in R
		2 hrs	connecting R with mysql and importing data from database
		2 hrs	Apply Family (sapply, tapply, mapply, apply, lapply, aggregate)
			<b>Second Assessment of R</b>
2 hrs	<b>Project in R</b>		
3	<b>Python (24 hrs.)</b>	2 hrs	Basics of Python ( Mathematical operations, for loop, while loop, if condition)
		1 hr	Number( maths, random, fraction library)
		2 hrs	String ( creation, insertion, deletion, updation, slicing, length, substring, instring, search)
		2 hrs	List( creation, insert, update, delete, length, max, min, find, count functions)
		1 hr	Tuple ( create, length , search)
		1 hr	Dictionary ( insert, update, delete, append, search, loop)
		1 hr	Sets ( Create, insert, update, delete, subset, search)
		2 hrs	Numpy( 1D array, 2D array, 3D array, mathematical, statistical function on numpy array, importing a file in numpy)
		2 hrs	file handling in python( read, write, update, append )
		2 hrs	Panda( Series (create, insert, update, delete, applying functions on series ))
		2 hrs	Panda( Data Frame (create, insert, update, delete, applying mathematical, statistical functions on data frame, grouping, sorting, reversing, ))
		3 hrs	Visualization in Python ( Seaborne, matplotlib)

		2 hrs	<b>Project in Python</b>
			<b>First Assessment of Python</b>
			<b>Second Assessment of Python</b>
4	<b>Statistics &amp; ML (20 hrs.)</b>	2 hrs	Descriptive Analytics
		2 hrs	Covariance, Correlation,
		2 hrs	Hypothesis Testing ( Null hypothesis, one tail, two tail, z test, t test)
		2 hrs	Regression Analysis (linear regression, non linear regression, logistics regression)
		2 hrs	Classification-KNN
		2 hrs	Classification- Decision Tree
		2 hrs	Probability, Bayes Theorem (Naive Bayes theorem)
		2 hrs	ANN
		1 hr	SVM
		1 hr	Clustering
		2 hrs	Time Series Analysis
			<b>First Assessment of ML</b>
			<b>Second Assessment of ML</b>
5	<b>Hadoop (10 hrs.)</b>	1 hr	HDFS Architecture/Cloudera
		1 hr	HIVE Architecture
		2 hrs	HQL (Create, insert, update, delete, joins, mathematical functions, text functions)
		2 hrs	HBASE ( Architecture, insert update, delete, joins, filters)
		2 hrs	PIG ( Architecture, insert, update, delete, filters)
		2 hrs	Flume/Sqoop
			<b>First Assessment of Hadoop</b>
			<b>Second Assessment of Hadoop</b>
6	<b>Spark (4 hrs.)</b>	1 hr	Spark Architecture
		1 hr	Scala
		2 hrs	SparkSQL/Pyspark/SparkR
			<b>Spark Assessment</b>
7	<b>Visualization (6 hrs.)</b>	2 hrs	Importing different type of Data into Tableau
		2 hrs	Making Dimesnsions, Measures, Filters in tableau
		2 hrs	Building different types of Graphs ( maps, treemap, market map, interactive graph)
9	<b>Soft Skills (10 hrs.)</b>	1 hr	Introduction to Soft Skills
		1 hr	Manage your work to requirement
		1 hr	Work effectively with colleagues
		1 hr	Maintain Healthy & Safe Work Environment
		1 hr	Information in Format Standards
		1 hr	Self Skills
		1 hr	Communication Skills
		1 hr	Develop Skills & Competencies
		1 hr	Interview Skills
		1 hr	Office Skills
			<b>Assessment of Soft Skills</b>