Python curriculum

module	ser	topic
1	**P1.0**	**Analytics - General**
1	P1.1	What is Analytics (BI, BA, Levels etc)
1	P1.2	Why Analytics (Appl in various domains..)
1	P1.3	Different Roles in Analytics
1	P1.4	Tools and Techniques in Analytics
1	P1.5	Data Science, Data Mining, Statistics, Machine Learning, Supervised and Non-Supervised Techniques
1	P1.6	Scales of Measurement
1	P1.7	CRISP Modeling Framework
2	**P2.0**	**Python Environment**
2	P2.1	Anaconda - Download & Setup
2	P2.2	IDEs - Jupyter, Spyder, PyCharm
2	P2.3	Git - Setup and Configuration with IDEs
2	P2.4	Creating and Managing Analytics/ ML Projects
3	**P3.0**	**Basic Programming and Data Structures**
3	P3.1	Basic Data Structures & Programming Contructs
3	P3.2	Libraries
3	P3.3	Numpy
3	P3.4	Pandas
3	P3.5	Matplotlib
4	**P4.0**	**Data Manipulation and Descriptive Summary**
4	P4.1	Group Summaries
4	P4.2	Crosstab, Pivot and Reshape data
4	P4.3	Managing Missing Values
4	P4.4	Outliers Detection
4	P4.5	Various types of Joins, merge
4	P4.6	Managing indexes in pandas
4	P4.7	Partitioning data into train and test set
4	P4.8	Scaling of Data (useful for Clustering)

5	**P5.0**	**Statistics**
5	P5.1	Basic Statistics (mean, median, mode)
5	P5.2	Other Statistics (sd, var, quantile, skewness, kurtosis)
5	P5.3	Hypothesis Tests (t-test, Chi-sq tests etc)
5	P5.4	Probability Distributions (normal, binomial etc)
5	P5.5	Sampling Techniques
5	**P7.0**	**Graphical Representation of Data**
5	P7.1	Selection of Graph
5	P7.2	Libraries (matplotlib, seaborn, plotnine)
5	P7.3	Basic Graphs (histogram, barplot, boxplot, pie etc)
5	P7.4	Managing plot parameters(size, title, axis, legend etc)
5	P7.5	Advanced Graphs (correlation, heatmap, mosaic etc)
5	P7.6	Exporting graphs
10	**P10.0**	**Linear Regression**
10	P10.1	Simple Linear Regression
10	P10.2	Multiple Linear Regression
10	P10.3	Libraries - sklearn, statsmodel
10	P10.4	Predict DV on IVs
10	P10.5	Metrics of Linear Regression(R2, RMSE, p-values)
10	P10.6	Applications of Linear Regression
10	P10.7	Assumptions of Linear Regression
11	**P11.0**	**Logistic Regression**
11	P11.1	Difference between Linear and Logistic
11	P11.2	Logistic Regression
11	P11.3	Metrics of Logistic Regression (confusion matrix, ROC curve)
11	P11.4	Predict probability of DV on IV
11	P11.5	Applications of Logistic Regression
12	**P12.0**	**Classification**
12	P12.1	Difference between classification and regression decision trees from CART models

12	P12.2	Understanding tree from the plot
12	P12.3	Classification Tree - predict class, plot, accuracy
12	P12.4	Regression Tree - predict numerical value, plot, RMSE
12	P12.5	Improving tree accuracy using Random Forests
12	P12.6	Bagging and Boosting
12	P12.7	Applications of Decision Tree
12	P12.8	KNN (K-nearest neigbours)
12	P12.9	Neural Networks
12	P12.10	Gradient Descent
12	P12.11	SVM (Support Vector Machine)
13	**P13.0**	**Cluster Analysis**
13	P13.1	Clustering for Grouping Data
13	P13.2	Types - Hierarchical & Non-Hierarchical
13	P13.3	Kmeans - output metrics (iter, error, plot)
13	P13.4	Hierarchical (Agglomerative & Divisive) - Dendrogram, Visual plot
13	P13.5	Extracting the data in clusters, Cluster Centers
13	P13.6	Applications of Clustering
14	**P14.0**	**Association Rule Analysis**
14	P14.1	Applying AR to grocery store for Market Basket Analysis
14	P14.2	Metrics- Support, Confidence, Lift
14	P14.3	Frequent Items Sets and Rules; Filtering rules
14	P14.4	Applications of AR
15	**P15.0**	**Text Mining**
15	P15.1	Managing unstructured Data; Unstructured to Structured Data
15	P15.2	Extracting Tweets from Twitter
15	P15.3	Extracting words for Sentiment Analysis
15	P15.4	Wprdcloud to visualise the frequency of occurance of words in text
15	P15.5	Applications of Text Mining

16	**P16.0**	**Time Series**
16	P16.1	Creating & Managing dates and times
16	P16.2	Creating and managing time series data
16	P16.3	Download stock prices data using libraries and analysing them
16	P16.4	Time Series Components(Seasonal, Irregular, Trend) & Types (Additive & Multiplicative)
16	P16.5	Time Series Analysis - Simple Moving Average, Exponential Smootheing, ARIMA forecasting
16	P16.6	Plotting Time Series, Candlesticks diagram for stocks
16	P16.7	Applications of Time Series Analysis