



MACHINE LEARNING COURSE CURRICULUM

(60 Hrs Online + 45 Hrs Videos)



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About K2 Analytics

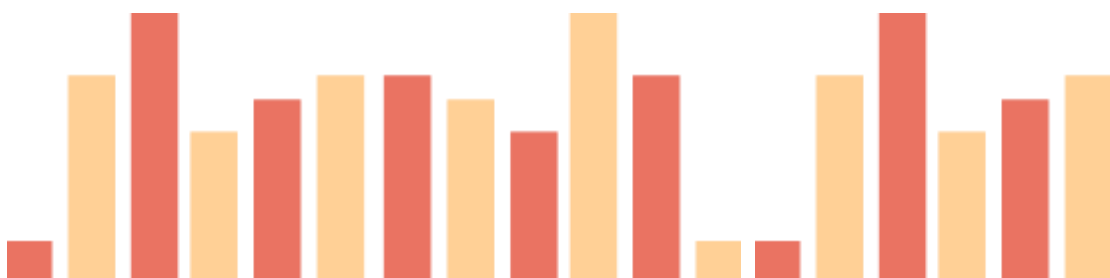
We provide Training, Placement and Consulting Services in the field of Data Science / Machine Learning

Our Website

<https://k2analytics.co.in>

Our Mission

“To provide training and skill development courses to individuals, make them skilled & industry ready, and create a pool of skilled resources readily available for the industry”



Our Offerings

Instructor Led Online Training

Access to Recorded Video Content

Consult with our faculty for your projects

Hands-on Project Experience

Hands-on Experiential Training

Capstone Projects

Placement Assistance

Machine Learning Course Curriculum

Instructor-led Online Session		
Sr. No	Topic	Hrs.
Tool Training		
1	Python Programming	10
Numerical Skills		
2	Statistics	20
Machine Learning Techniques		
3	Clustering	6
4	Linear Regression	8
5	Classification Tree	6
6	Logistic Regression	10
Total Hours		60

Complimentary Video Access

Complimentary Six Month Access to Video Recordings

Sr. No	Topic	Hrs.
1	R Programming	10
2	K Nearest Neighbour	1
3	Naïve Bayes	1
4	Linear Regression in R	3
5	Logistic Regression in R	12
2	Bagging (Random Forest) in R & Python	5
3	Classification Tree in R	5
4	Artificial Neural Network in R & Python (Tensorflow & Keras)	8
Total Hours		45

PYTHON PROGRAMMING

COURSE DETAILS

- Introduction to Python and Anaconda
- Spyder and Jupyter Notebook
- Understanding Python Data Structures
 - List, Tuple, Dictionary, Sets
 - Mutable and immutable Objects
- Numpy and Pandas Packages in Python
 - 1D, 2D, 3D Array
 - Series and Dataframe
- Data Import – Export using PANDAS
- Data Manipulation
 - Selecting Rows / Observations
 - Selecting Columns / Fields
 - Merging Data
 - Relabeling the Column Names
 - Converting Variable Types
 - Data Sorting
 - Data Aggregation
- Matplotlib and Seaborn packages
 - Charts & Graphs

COURSE DURATION

- 10 Hours

STATISTICS

COURSE DETAILS

- Introduction to Statistics for Data Science
- Types of Variables
- Descriptive Statistics – Numerical Methods
- Measures of Central Tendency
 - Mean, Median, Mode
- Measures of Dispersion
 - Range, Interquartile Range, Standard Deviation, Variance
- Descriptive Statistics – Tabular & Graphical Methods
 - Histogram, Line Plot, Bar Plot, Pie Chart
 - Box Plot, Scatter Plot
 - Frequency Table, Crosstab
- Probability Concepts
- Distributions
 - Normal Distribution
 - Binomial Distribution
- Central Limit Theorem
- Hypothesis Testing

COURSE DURATION

- 20 Hours

UN-SUPERVISED MACHINE LEARNING

CLUSTERING

COURSE DETAILS

- [Clustering](#)
 - Why Clustering?
 - What is Clustering?
 - Measure of Similarity
 - Distance Measures
 - Hierarchical Clustering
 - K Means Clustering
 - Finding Optimal No. of Clusters

PROJECTS

- Clustering of Retail Customers

BLOG LINKS:

[Hierarchical Clustering](#)
[K Means Clustering](#)

COURSE DURATION

- 6 Hours

SUPERVISED MACHINE LEARNING

LINEAR REGRESSION

COURSE DETAILS

- Introduction to Linear Regression
- Assumptions of Linear Regression
- Simple Linear Regression
- Multiple Linear Regression
- Line of Best Fit
- Residual Error, SSE
- R-Squared & Adj, R-Squared
- Correlation & Multi-Collinearity
- Variance Inflation Factor
- Homoscedasticity & Heteroscedasticity
- Variable Transformation and its Importance

PROJECTS

- Build Linear Regression Model to Estimate Monthly Household Expense

BLOG LINK

[Linear Regression blog series](#)

COURSE DURATION

- 8 Hours

SUPERVISED MACHINE LEARNING

CLASSIFICATION TREE

COURSE DETAILS

- Introduction to Classification Tree
- CHAID, CART, C4.5
- Greedy Algorithm
- Balanced & Unbalanced Data
- CART – Gini Gain Calculation
- Binary / Multi-way Split
- Pruning
- Cross-Validation
- Overfitting
- Model Development & Evaluation
- Pros & Cons of Classification Tree Technique

PROJECTS

- Case-Study – Dormant Account Win-back Model
- Classification Tree Model Development on Balanced Dataset

BLOG LINK

[Retail Banking Case-Study](#)

COURSE DURATION

- 6 Hours

SUPERVISED MACHINE LEARNING

LOGISTIC REGRESSION

COURSE DETAILS

- Introduction to Logistic Regression
- Log Odds Concept and Logistic Function
- Development, Validation and Hold-out
- Hypothesis Testing
- Outlier Treatment & Missing Value Imputation
- Information Value
- Pattern Detection and Visualization
- Variable Transformation
- Weight of Evidence
- Multi-Collinearity & Variance Inflation Factor (VIF)
- Model Development & Validation
- Model Performance Measurement
 - KS, Rank Order, Lift Chart, AUC-ROC, Gini, Concordance, Hosmer-Lemeshow Goodness of Fit Test

PROJECTS

- Personal Loans Cross-Sell Model using Logistic Regression Technique

BLOG LINK

[Logistic Regression blog series](#)

COURSE DURATION

- 10 Hours



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