



Micro Engineering Certification Program

DATA SCIENCE FOR REAL WORLD ANALYTICS

Course Summary

Course Duration

10-11 weeks (approximately 2-3hrs/week)

Resource Person

Dr. Pramod Kumar Naik & Team, Director AIEDGE Technologies Pvt Ltd Bangalore.

Purpose of the course

This course provides a comprehensive introduction and focuses on data analytics and machine learning techniques, practical deep learning using MATLAB® and Python. The course demonstrates the use of unsupervised learning to discover features in large data sets and supervised learning to build predictive models. Attendees will learn how to create, train, and evaluate different kinds of deep neural networks.

This course teaches you how Data Science & Deep Learning can be used to solve real-world business problems and how you can apply these techniques to 20 real-world case studies.

Traditional Businesses are hiring Data Scientists in droves, and knowledge of how to apply these techniques in solving their problems will prove to be one of the most valuable skills in the next decade! "Data Scientist has become the top job in the US for the last 4 years running!" according to Harvard Business Review & Glassdoor.

However, Data Science has a difficult learning curve - How does one even get started in this industry awash with mystique, confusion, impossible-looking mathematics, and code? Even if you get your feet wet, applying your newfound Data Science knowledge to a real-world problem is even more confusing.

This course seeks to fill all those gaps in knowledge that scare off beginners and simultaneously apply your knowledge of Data



Department of Computer Science & Engineering & Malnad Enclave for Research, Innovation, Incubation, Startups & Entrepreneurship (ME-RIISE)



Science and Deep Learning to real-world business problems.

Pre-requisites

- Familiar with basic programming concepts
- Highschool level math knowledge
- Broadband Internet connection for hands-on Session

Who this course is for?

- Beginners to Data Science, Engineering and Diploma Students
- Business Analysts who wish to do more with their data
- College graduates who lack real world experience
- Business oriented persons (Management or MBAs) who'd like to use data to enhance their business
- Software Developers or Engineers who'd like to start learning Data Science.

Note:

1. This course is completely done using online collaboration methods. A part of this can be done in classroom
2. This course can be further customized based on the requirements of NTT Data.
3. Idle participants strengths for this course is 20-50 students.

This course has a comprehensive syllabus that tackles all the major components of Data Science knowledge.

Our Learning path includes:

Week 1	How Data Science and Solve Many Common Business Problems
Week 2	The Modern Tools of a Data Scientist - Python, Pandas, Scikit-learn, Seaborn, Matplotlib & Plotly (Manipulate Data and Create Information Captivating Visualizations and Plots).
Week 3	Statistics for Data Science in Detail - Sampling, Distributions, Normal Distribution, Descriptive Statistics, Correlation and Covariance, Probability Significance Testing and Hypothesis Testing.

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Week 4	Machine Learning Theory - Linear Regressions, Logistic Regressions, Decision Trees, Random Forests, KNN, SVMs, Model Assessment, Outlier Detection, ROC & AUC and Regularization
Week 5	Deep Learning Theory and Tools - TensorFlow 2.0 and Keras (Neural Nets, CNNs, RNNs & LSTMs)
Week 6	Solving problems using Predictive Modeling, Classification, and Deep Learning
Week 7	Data Science in Marketing - Modeling Engagement Rates and perform A/B Testing
Week 8	Data Science in Retail - Customer Segmentation, Lifetime Value, and Customer/Product Analytics
Week 9	Unsupervised Learning - K-Means Clustering, PCA, t-SNE, Agglomerative Hierarchical, Mean Shift, DBSCAN and E-M GMM Clustering
Week 10	Recommendation Systems - Collaborative Filtering and Content-based filtering + Learn to use LiteFM
Week 11	Natural Language Processing - Bag of Words, Lemmatizing/Stemming, TF-IDF Vectorizer, and Word2Vec.