

DATA SCIENCE (INTERMEDIATE TO ADVANCED)

Enhance your skills on Python Programming

Introduction

This course will introduce you to what data science is and what data scientists do. You'll discover the applicability of data science across fields, and learn how data analysis can help you make data driven decisions as well as build machine learning models and deploy data science solution to a web app.

Training Duration

5 Full Days

Who Should Attend?

- Software Engineer
- Computer Science Engineer
- Data Analyst

Pre-requisite

- Python Programming

Objectives

- Use **principles of statistics and probability** to design and **execute A/B tests and recommendation engines** to assist businesses in making data-automated decisions
 - Build **Machine Learning Models** & make predictions
 - Deploy a data science **solution** to a web app
 - **Manipulate and analyse** distributed datasets using Apache Spark
 - Communicate results **effectively** to stakeholders
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Level	Objectives	Duration
Intermediate	Data Scientist (Intermediate) - • Understand Supervisory Machine Modelling • Learn Regression & Classification Machine Learning Models • Learn various techniques to validate ML models • Finding patterns in data by un-supervised Machine Learning	2 days
Advanced	Data Scientist (Advanced) - • Understand Time Series data & making forecasts • Natural Language Processing & Sentiment Analysis • Understand Artificial neural networks • Understanding multi-layer neural network • Using Deep Learning for image recognition • Create Dashboard and deploy machine learning model into web application • Experimental Design & Recommendations • Recommendation Engines	3 days

Course Outline

Intermediate Level Data Scientist Program

Module 1: Software Engineering - I

- Clean & Modular Code
- Refactoring Code
- Writing Clean Code
- Efficient Code
- Documentation
- In-line Commenting
- Docstrings
- Version Control

Module 2: Software Engineering - II

- Testing, Unit Tests
- Logging
- Code Review

Module 3: Supervised Learning

- Machine Learning Bird's Eye View
 - Linear Regression
 - Perception Algorithm
 - Decision Trees
 - Naive Bayes
 - Support Vector Machines
 - Ensemble Methods
 - Model Evaluation Metrics
 - Training and Tuning
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Module 4: Unsupervised Learning

- Clustering
- K-Means clustering
- Hierarchical and Density Based Clustering
- Gaussian Mixture Models and Cluster Validation
- PCA
- Random Projection and ICA
- Project: Identify Customer Segments

Advanced Level Data Scientist Program

Module 1: Time Series Analysis& Forecasting

Module 2: Natural Language Processing

- Tokenisation
- Stop Words
- Speech Tagging
- Named Entity Recognition
- Stemming and Lemmatisation
- Feature Extraction
- Bag of Words
- TF-IDF
- One-Hot Encoding
- Word Embeddings
- Modeling

Module 3: Deep Learning

- Introduction to Neural Networks
 - Implementing Gradient Descent
 - Training Neural Networks
 - Keras
 - Deep Learning with PyTorch
 - Image Classifier Project
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Module 4: Deploying Model on Web / Dashboard

- Front-End, HTML, Flask
- Deploying Model

Module 5: Experimental Design & Recommendations

- Introduction to Experiment Design and Recommendation Engines
- Experiment Design & A/B Testing
- Concepts in Experiment Design
- Types of Experiment
- Types of Sampling
- Measuring Outcomes
- Creating Metrics
- Controlling Variables
- Checking Validity
- Checking Bias
- Ethics in Experimentation
- A SMART Mnemonic for Experiment Design
- Statistical Considerations in Testing
- A/B Testing Case Study

Module 6: Recommendation Engines

Testimonials

"One thing I really liked about this course is the Machine Learning Model. Everything was wonderful but that part of the session was my favourite as I learnt a lot."

- Intel employee -

"It was an interesting course and the instructor was great as well. He was patient with all of us in class and he made sure we understood the content well. Highly recommended."

- Intel employee -

"From this course, I've gained more knowledge about data science and great knowledge was driven. I would like to show my appreciation to the trainer and his team for the great session."

- Intel Employee -

"The instructor gave us good exercises and good examples which was really helpful. He was also well prepared which was great. Keep up the good work!"

- Intel employee -

About Elite Indigo

Elite Indigo Consulting provides corporate training to the semiconductor and manufacturing industries. With a humble beginning of one founding member with passion and desire to share his 20 years of experiences in Smart Manufacturing for global manufacturing facilities, now, we have a strong and competent team of 20 members, all aligned with company mission, vision and core values.

Our Mission

"Transform Data into Insights - Leap Forward"

Our Vision

Be a Global Trusted Advisor in the Areas of Skills Development, Consultancy & Software Solutions specialising in Semiconductor & Manufacturing industries.

Our Core Values

