

Course Durations: 40 Hours

Course Mode: Online/Offline

About Company:

EduNextgen extended arm of Product Innovation Academy is a growing entity in education and career transformation, specializing in today's most in-demand skills. A platform with blended learning programs supported by in-trend technology platforms for learning. Engaging organizations for learning development objectives.

Training courses are designed and updated by renowned industry experts. Our blended learning approach combines online classes, instructor-led live virtual classrooms and virtual teaching assistance.

About The Course:

The Data Science and Machine Learning course is designed with the depth of Data Science and Machine Learning Concepts using R Programming. This course will help you to move your first step on Data Science world. You will get in depth knowledge on Data Structure in R, Understanding Vectors & Data input in R, Creating Data Files using R. Visualization and Metrics, Sampling and Estimating, Probability, Clustering, Classification, Regression, etc. The Course is bundled with Industry Grade Projects, Assignments and Use Cases.

Why This Course:

- Covers Visualization and Metrics, Sampling and Estimating, Probability, Clustering, Classification, Data Structure in R, Creating Data Files using R, Regression etc.
- Hands-on Experience
- Industry Grade Use Cases
- Online Practical Platform
- Live Support (24x7)

Participants will get the Access to:

- LMS Access
- Cloud Lab
- 50+ Assignments
- 100+ Quizzes
- 5+ Industry Grade Projects
- Live Support via Mail, Call and Screen Sharing
- Course Completion Certificate

Batch Schedule (Online):

Weekend: 3 Hours per day

Weekday: 2 Hours per day

Batch Schedule (Offline):

Weekend: 4 Hours per day, Weekday: 2 Hours per day

Course Curriculum

R Programming (12 Hrs.)

Module 1: Introduction to Data Science

This module will help you to understand what Data Science is and how it solves modern day challenges. You will also get to know what makes a Data Scientist and the job family. You will also be introduced to evolution of Data Science role into Machine Learning:

- Introduction to Data Analytics
 - Introduction to Business Analytics
 - Understanding Business Applications
 - Data types and data Models
 - Type of Business Analytics
 - Evolution of Analytics
 - Data Science Components
 - Data Scientist Skillset
 - Univariate Data Analysis
 - Introduction to Sampling
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Module 2: Data Handling in R Programming

This module will help you to get hands on with R Programming Language for Data Science and Machine Learning. Below topics are covered in this module:

- Introduction to R programming
 - Types of Objects in R
 - Naming standards in R
 - Creating Objects in R
 - Data Structure in R
 - Matrix, Data Frame, String, Vectors
 - Understanding Vectors & Data input in R
 - Lists, Data Elements
 - Creating Data Files using R
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Module 3: Data Comprehension through Visualization and Metrics

This module will help you to read data in context, visualize, calculate basic metrics and draw insights about data. Below topics are covered in this module:

- Basic Operations in R Expressions, Constant Values, Arithmetic, Function Calls, Symbols
 - Sub-setting Data
 - Selecting (Keeping) Variables
 - Excluding (Dropping) Variables
 - Selecting Observations and Selection using Subset Function
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- Merging Data
 - Sorting Data
 - Adding Rows
 - Visualization using R
 - Data Type Conversion
 - Built-In Numeric Functions
 - Built-In Character Functions
 - User Built Functions
 - Control Structures
 - Loop Functions
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Introduction to Statistics (10 Hrs.)

Module 1: Introduction to Statistics

This module will help you to understand the basics of Statistics covering Distribution and its types, Central Tendency, Mean, Mode, Median, Deviation and etc. Below topics are covered in this module:

- Basic Statistics
- Measure of central tendency
- Types of Distributions
- Anova
- F-Test
- Central Limit Theorem & applications
- Types of variables
- Relationships between variable
- Central Tendency
- Measures of Central Tendency
- Kurtosis
- Skewness
- Arithmetic Mean Average
- Merits & Demerits of Arithmetic Mean
- Mode, Merits & Demerits of Mode
- Median, Merits & Demerits of Median
- Range
- Concept of Quantiles, Quartiles, percentile
- Standard Deviation
- Variance
- Calculate Variance
- Covariance
- Correlation

Module 2: Introduction to Statistics -2

This module will help you to understand some Advanced Concepts of Statistics like Regression techniques, Clustering, Decision Trees and etc. Below topics are covered in this module:

- Hypothesis Testing
 - Multiple Linear Regression
 - Logistic Regression
 - Market Basket Analysis
 - Clustering (Hierarchical Clustering & K-means Clustering)
 - Classification (Decision Trees)
 - Time Series Analysis (Simple Moving Average, Exponential Smoothing, ARIMA+)
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Module 3: Introduction to Probability

Probability is key to arrive at and Validate Estimates. ML is all about Estimating. This is refresher for basic probability required for ML. Below topics are covered in this module:

- Standard Normal Distribution
 - Normal Distribution
 - Geometric Distribution
 - Poisson Distribution
 - Binomial Distribution
 - Parameters vs. Statistics
 - Probability Mass Function
 - Random Variable
 - Conditional Probability and Independence
 - Unions and Intersections
 - Finding Probability of dataset
 - Probability Terminology
 - Probability Distributions
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Machine Learning with R (18 Hrs.)

Module 1: Introduction to Machine Learning

This module will help you to understand what Machine Learning is, Data Mining, what is Learning and types of learning in ML and its applications. Below topics are covered in this module:

- Overview & Terminologies
 - What is Machine Learning?
 - Why Learn?
 - When is Learning required?
 - Data Mining
 - Application Areas and Roles
 - Types of Machine Learning
 - Supervised Learning
 - Unsupervised Learning
 - Reinforcement learning
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Module 2: Machine Learning Concepts and Terminologies

This module will help you to understand how to develop a Machine Learning application and some key Concepts and ML Terminologies. Below topics are covered in this module:

- Steps in developing a Machine Learning application
- Key tasks of Machine Learning
- Modelling Terminologies
- Learning a Class from Examples
- Probability and Inference
- PAC (Probably Approximately Correct) Learning
- Noise
- Noise and Model Complexity
- Triple Trade-Off
- Association Rules
- Association Measures

Module 3: Regression Techniques

Regression is Technique to Predict Continuous Values. Regression finds application in many areas and the most challenging in ML. In this you will learn different Techniques, Challenges and Solutions along with Applications. Below topics are covered in this module:

- Concept of Regression
- Best Fitting line
- Simple Linear Regression
- Building regression models using excel
- Coefficient of determination (R- Squared)
- Multiple Linear Regression
- Assumptions of Linear Regression
- Variable transformation
- Reading coefficients in MLR
- Multicollinearity
- VIF
- Methods of building Linear regression model in R
- Model validation techniques
- Cooks Distance
- Q-Q Plot
- Durbin- Watson Test
- Kolmogorov-Smirnov Test
- Homoscedasticity of error terms
- Logistic Regression
- Applications of logistic regression
- Concept of odds
- Concept of Odds Ratio
- Derivation of logistic regression equation
- Interpretation of logistic regression output
- Model building for logistic regression
- Model validations

- Confusion Matrix
 - Concept of ROC/AOC Curve
 - KS Test
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Module 4: Market Basket Analysis

Market Basket Analysis is carried out to understand what goes in the basket of Retail Customers. The direct benefit of it is planning inventory and recommending retailer on what clubbing-offers will make sense for customers. Market Basket Analysis is the case of applying Probability and ONLY Probability to build a valuable Recommendations System. Below topics are covered in this module:

- Applications of Market Basket Analysis
 - What is association Rules
 - Overview of Apriori algorithm
 - Key terminologies in MBA
 - Support
 - Confidence
 - Lift
 - Model building for MBA
 - Transforming sales data to suit MBA
 - MBA Rule selection
 - Ensemble modelling applications using MBA
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