



Certificate
program in
data science



EY

Building a better
working world



Certificate program in data science

About the course

As organizations have been adopting and investing in new technologies to leverage their data to take strategic business decisions and the increase in demand for data scientists has been observed in past few years. Basis the demand, data science has emerged as a new profession that is expected to derive sense from the vast stores of data across the world

Organizations are using data science tools to stay ahead of the cutting-edge competition and knowing their customers behaviour and patterns to ensure that a better decision can be taken.

EY Learning Solutions, has curated the “Certificate program in Advanced Data Science and Business Analytics”. The 200 hours of comprehensive program may help the participants enhance their career path by gaining proficiency, skills and the ability to build solutions through data to complex business problems. For the re-enforcement of the learning two major real-life projects are to be provided to each participant.

Program structure:

- ▶ 200 hours of comprehensive curriculum spread across 7 modules
- ▶ Three projects to have real time practical exposure. Project duration 30 hours.
- ▶ Quizzes and assessment after each module
- ▶ Internship opportunity with EY to the deserving candidates*

Who should take this course?

- ▶ Engineering and science graduates/ post graduates / freshers
- ▶ Working professionals and entrepreneurs
- ▶ Working professionals who intend to build their career in the field of web development and coding
- ▶ Working professionals who wish to build their career in the field of machine learning and artificial intelligence
- ▶ Working professional who intend to build their career in analytics
- ▶ Fresh graduates and young professionals
- ▶ Mid-level managers
- ▶ Professionals working with MIS and operations

Outcome of the course

- ▶ Participants will be able to develop relevant analytical abilities to derive insights from the data
- ▶ Participants will be able to demonstrate proficiency with statistical analysis of data
- ▶ Upon the completion of the course participants shall develop the ability to build and assess data-based models and will execute statistical analysis with professional statistical tool
- ▶ They will demonstrate skill in data management and will apply data science concepts and methods to solve problems in real-world context and will communicate these solutions effectively

Course eligibility

Bachelor's degree in any discipline with a minimum of 50% aggregate marks in graduation or equivalent

* Internship opportunity with EY to the deserving candidates subject to EY's discretion.



Detailed course agenda

Module 1

Applied Statistics and Analytics using Excel

- ▶ Sample and population data
- ▶ Fundamentals of descriptive statistics
- ▶ Measure of central tendency, variability
- ▶ Standard normal distribution
- ▶ Central limit theorem and standard error
- ▶ Estimators and estimates
- ▶ T-Distribution and margin of error
- ▶ Confidence interval
- ▶ Inferential statistics
- ▶ Hypothesis testing
- ▶ Type I error vs. Type II error
- ▶ Descriptive statistics, ranks and ANOVA
- ▶ Statistical test and regression
- ▶ Excel dashboard with pivot tables
- ▶ Create Excel dashboards using macros
- ▶ Goal seek
- ▶ What if analysis and solver
- ▶ Introduction to VBA
- ▶ Simple VBA codes for macros

Module 2

Database design and system

- ▶ Fundamental database concepts
- ▶ The entity relationship model (=ER)
- ▶ The relational data model
- ▶ Logical database design
- ▶ **SQL: Querying and manipulating data**
 - ▶ SQL data definition language
 - ▶ Single block queries
 - ▶ Aggregation
 - ▶ Joins and outer joins
 - ▶ Nesting
 - ▶ Negation
- ▶ **Data storage and indexing**
 - ▶ File organization and indexes
 - ▶ Tree-structured indexing: B+-trees
 - ▶ Hash-based indexing
 - ▶ Indexes in PostgreSQL

- ▶ RDBMS operators
- ▶ Primary and foreign keys
- ▶ Index in RDBMS
- ▶ RDBMS normalization
- ▶ Data abstraction
- ▶ RDBMS extensions and intensions
- ▶ Data independence in RDBMS
- ▶ SQL querying (DDL) adware, rootkits, backdoors, zero-day attacks

Module 3

Exploratory analytics in Python

- ▶ Exploratory analytics in Python
- ▶ Introduction to Python for data science
- ▶ Introduction to SQL
- ▶ Statistics and data analysis
- ▶ Data wrangling
- ▶ Data visualization
- ▶ Python libraries and data structures
- ▶ Exploratory analysis in Python using Pandas
- ▶ Introduction to series and data frames
- ▶ Data munging in Python using Pandas
- ▶ Multithreading
- ▶ Fundamentals of data analytics
- ▶ Web development with Python
- ▶ Project development with Python

Module 4

Predictive modelling in Python

- ▶ Supervised machine learning
- ▶ Logistic regression
- ▶ Decision tree
- ▶ Random forest
- ▶ Gradient decent, cost function
- ▶ Linear regression with single and multiple variable to solve predictive problem



Module 5

Machine learning and artificial intelligence in Python

- ▶ Unsupervised learning -k means clustering algorithm in machine learning
- ▶ Practice dataset and visualization of dataset
- ▶ Logistic regression-model (implement titanic data set)
- ▶ KNN Methods
- ▶ Support vector machines (SVMs)
- ▶ Naïve Bayes theorem
- ▶ Decision tree
- ▶ Example of random forest for weather dataset
- ▶ Deep learning
- ▶ Neural networks
- ▶ NLP (Natural Language Processing)
- ▶ Computer vision: Insufficient logging and monitoring

Module 6

Data visualization and story telling in Power BI

- ▶ Introduction to Power BI
- ▶ Introducing Power Pivot
- ▶ Working with data (cleaning and transforming the data)
- ▶ Enhancing the data model
- ▶ Analyzing data through Power Pivot

- ▶ Custom graphics and charts and maps
- ▶ Data Analysis Expression (DAX)
- ▶ Working with calculated tables
- ▶ Using parameter tables
- ▶ Publishing and managing Power Pivot Models
- ▶ Importing data with Power Query
- ▶ Analyzing data with Power View and Power Map
- ▶ Power BI and Excel together

Module 7

Blockchain and its use cases

- ▶ Introduction to Blockchain
- ▶ Blockchain objectives
- ▶ Immutable ledger
- ▶ Distributed P2P network
- ▶ Bitcoin and blockchain data structures
- ▶ Blockchain extended applications
- ▶ Ethereum and smart contracts
- ▶ Emerging trends in blockchain
- ▶ Hyperledger
- ▶ Ripple
- ▶ R3
- ▶ Blockchain and cloud computing

Key highlights

- ▶ Experiential learning. A comprehensive practical oriented session
- ▶ Opportunity to participate in Kaggle Competition
- ▶ Case study-based learning pedagogy
- ▶ Sessions by industry experts to give real life based learning experience on business problems



Program deliverables

- ▶ 33 sessions of 6 hours each during weekends
- ▶ Course material and data sets
- ▶ Hands on learning on the tools - Excel, MySQL, Python, Power BI to enhance business acumen for participants
- ▶ Three simulated projects will be provided to each participant
- ▶ Assessment after every module and final assessment

Delivery mode

The program will be delivered live in virtual instructor-led training mode (VILT)

Assessment and certification

EY will award "Certificate of Completion" to participants at the end of the program on successfully clearing the modular assessment, projects and final assessment.

- ▶ Assessment would be based on MCQ's.
- ▶ Participant needs to achieve a minimum score of 50% to pass the exam.
- ▶ All participants who meet the above criteria would be awarded a certificate of completion

Schedule

Program fee

INR 1,00,000 plus taxes

Contact

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Our other flagship programs

- ▶ Certificate in Ind-AS
- ▶ Certificate in Advance Analytics using R
- ▶ Certificate in Exploratory Analytics in Python
- ▶ Certificate in Finance for Non-Finance Managers
- ▶ Certificate in Business Intelligence using Power BI
- ▶ Certificate in Blockchain Technology
- ▶ Certificate in Data Visualization Using Tableau
- ▶ Certificate in Financial Modelling and Valuation
- ▶ Certificate in Lean Six Sigma Green Belt
- ▶ Certificate in Artificial Intelligence and Machine Learning in Python
- ▶ Certificate in Predictive Analytics in Python



In today's testing business environment, with organizational transformation and regulatory change constant features, a flexible and cost-effective workforce is critical. High-quality training is a crucial element of innovative talent management, to improve performance and ensure that your teams can respond to today's challenges and are equipped for career success.

We, at EYFAAS, realized this need and accordingly we have set up a dedicated "Learning Solution" practice to help corporate and practicing professionals to deal with new requirements. FAAS Learning Solutions supplements EY's primary range of services and provide business specific training solutions for our clients and business communities throughout India, Europe, the Middle East and Africa. This is done with the help of a multidisciplinary team of trainers from around the world. As a globally integrated firm, we bring global insight to our training programs.

All training programs are regularly updated to reflect changing trends and guidance. Our practical, relevant and stimulating courses are facilitated by highly competent trainers who have first-hand knowledge of the subject matter. We recognize that each client will have a different history, size, location and sector; therefore, programs can be tailored to specific needs of your business.

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