



E&ICT Academy  
IIT Guwahati



# Advanced Certification Programme in Data Science and Business Analytics with Generative AI

## Transform Your Career with Cutting-Edge Data Skills

📅 10 Months | 🖥️ Online + Live Sessions

🎓 E&ICT Academy, IIT Guwahati | 💡 Advanced Specialisations  
Alumni Status

Coding Experience Not Required

Additional  
Certification from















In Collaboration with



## Programme Summary

### Advanced Certification Programme in Data Science and Business Analytics with Generative AI

 <b>Institute Name</b> E&ICT Academy, IIT Guwahati	 <b>Programme Duration</b> 10 months	 <b>Cost</b> INR 1,32,000 + GST
 <b>Learning Mode</b> Pre-recorded videos and live sessions	 <b>Weekly Effort</b> 8-10 hours/week (additional effort required for non-technical students)	 <b>Faculty</b> Industry experts and practitioners
 <b>Campus Immersion</b> Two-day optional campus immersion event at IIT Guwahati (Only for successful learners)	 <b>Alumni Status</b> Alumni status upon successful completion from E&ICT Academy, IIT Guwahati	 <b>Guest Faculty</b> IIT Guwahati
 <b>Specialisations</b> Choose any one specialisation between Analytics in Business and Generative AI in Data Science	 <b>Eligibility</b> Minimum graduate or diploma holder (10+2+3)	 <b>E&amp;ICT Academy, IITG + IBM Certificates</b> A verified digital certificate and hard copy from E&ICT Academy, IIT Guwahati and three IBM certificates upon successful completion of the programme

## Learning Experience

- **Pre-recorded videos - Flexibility** - Learn at your own pace, around your busy schedule
- **Virtual Labs** - Access cutting edge virtual labs for real-world applications and hands on learning
- **On-Demand learning & Assignments** - Revisit concepts anytime for deeper understanding
- **Masterclasses by top IITG faculty** - Learn from world-class faculty
- **Cohort-based learning** - Connect and network with peers through discussion boards
- **IBM Masterclasses** - Sessions by IBM experts on latest topics, tools, and trends

## Frequently Asked Questions

### Are there any LIVE sessions with the institute faculty in this programme?

This programme contains high-quality pre-recorded videos by industry experts, along with masterclasses from IIT Guwahati faculty and live sessions from industry experts.

### What is the role of the industry expert? Are they institute faculty?

Industry experts will conduct live sessions, help with doubt clearing, cover specific topics deeper and share real-world examples wherever needed. They are not faculty of the institute

### Who grades/gives inputs on the assignments and projects?

The grading frameworks for assignments are developed in partnership with industry experts and Emeritus grading team.

### Is there a qualifying mark/grade to get the final certification in this programme?

Yes, the qualifying mark is 70%.

### What if I miss the assignments for a particular week? Can I attempt them later?

If you miss assignments for a particular week, you can complete them anytime before the programme concludes. We provide flexibility for you to catch up and submit assignments at your convenience within the programme's duration

### Who are the faculty for the LIVE masterclasses/online sessions/doubt clearing sessions?

Masterclasses are conducted by IITG faculty. Doubt-clearing sessions are carried out by the Industry experts, as they monitor individual student progress.

### What if I don't find the programme appropriate for me after starting the sessions? Can I seek a refund?

We encourage participants to complete the programme to fully understand the concepts and derive valuable learning outcomes. Should you still feel the need to stop your learning journey, a refund request can be initiated before the programme commencement. However, after the programme commences and the fee becomes non-refundable.

### What type of certificate will I receive?

Upon successful completion of the programme, you will receive a smart digital certificate and a hard copy. The smart digital certificate can be shared with friends, family, schools or potential employers. You can use it on your cover letter or resume and/or display it on your LinkedIn profile.

### How long will I have access to the learning materials?

You will have access to the online learning platform and all the videos and programme materials for 12 months following the programme end date. Access to the learning platform is restricted to registered participants, as per the terms of agreement.

Note: This programme summary is provided only for your convenience. You are advised to refer to the programme brochure for more information.

# Accelerate Your Leadership Journey in Data Science and Business Analytics

From start-ups to global organisations, the need for data-driven efficiency has skyrocketed the demand for data science and business analytics professionals. These experts streamline operations and enhance agility, making themselves indispensable. Upskilling in DSBA can rapidly accelerate your career and open doors to leadership roles worldwide.

## 35%-39% growth

**compounded annual growth** in DSBA jobs is projected between 2022 and 2023, with roughly 17,000+ jobs coming to the market each year  
*(Source: US Bureau of Labor Statistics).*

**BUT**

## 2,10,000+ positions remain vacant

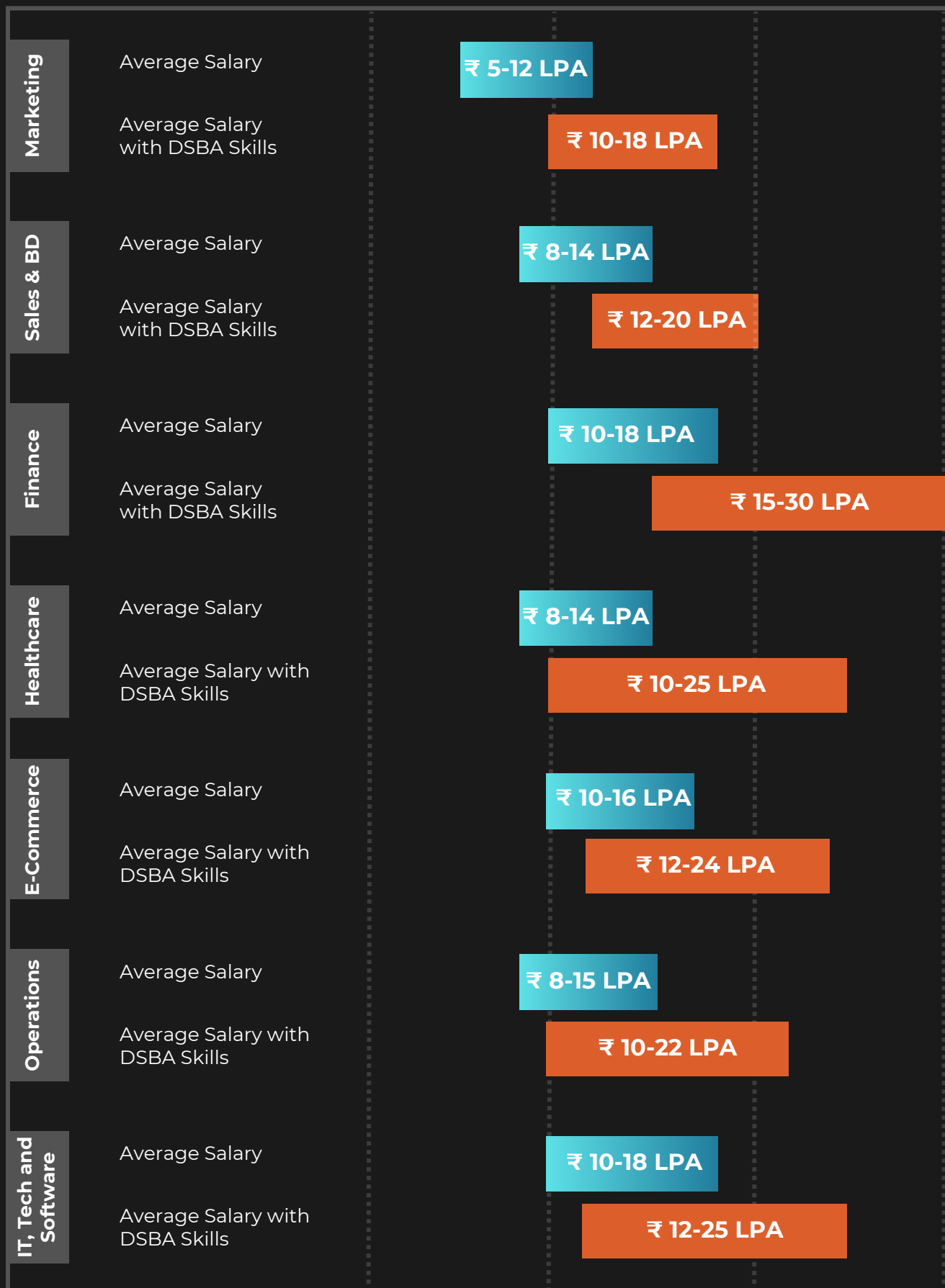
on LinkedIn and Naukri.com, with most jobs in the BFSI sector and the largest employers being MNCs.

### The top skill sets that data science employers are looking out for:

- Data-Driven Analysis
- Programming Languages like Python, R, and SQL
- Machine Learning
- Data visualisation
- Big Data Technologies
- Database Management
- Data Cleaning and Pre-processing
- Generative AI
- Predictive analytics

As an aspiring professional, you can now master these cutting-edge skills with the **Advanced Certification Programme in Data Science and Business Analytics with Generative AI Programme** by E&ICT Academy, IIT Guwahati and earn a long rewarding career ahead.

# Acquiring Data Science/Business Analytics Skills Can Fetch You Up To 3x Higher Salaries



Source: Glassdoor, Analytics India Magazine, Analytics Vidhya, Internshala, and CollegeDunia.  
 Note: These salary figures are for a similar work experience bracket.



# Empower Your Data Science Career with Cutting-Edge Industry Insights

Digital transformation has reshaped business worldwide, igniting an unstoppable data and analytics revolution. Organisations are now embedding data-driven decision-making into their very DNA, relentlessly optimising operations for peak efficiency and competitive advantage.

At the heart of this revolution lies the **Advanced Certification Programme in Data Science and Business Analytics from the E&ICT Academy, IIT Guwahati**. This programme is designed to transform aspiring individuals into industry-ready data science experts.

- **E&ICT Academy, IIT Guwahati:** A strategic and innovative institution that aims to provide specialised training through its rigorous curriculum, equipping you with the foundational knowledge and advanced techniques in data science and GenAI.
- **IBM:** As a global technology leader, IBM brings its industry expertise and cutting-edge tools to provide real-world insights and practical applications.
- **Emeritus:** A global leader in online education, Emeritus ensures a seamless learning experience with world-class instructional design and support services.

The E&ICT Academy, situated within the state-of-the-art technology complex at the prestigious Indian Institute of Technology Guwahati, serves as a dynamic hub for innovation. Its mission of providing specialised training is also supported by IIT Guwahati that is:



Ranked **7th**  
in India (NIRF  
Engineering, 2024)



Ranked **9th**  
in India (NIRF  
Engineering, 2024)



Top **300** in  
the world  
QS World University  
Rankings 2025



# Who Can Benefit from This Programme

This programme is designed for professionals who want to leverage data and machine learning (ML) to gain a competitive edge. This programme will equip you with the skills and knowledge to succeed in today's data-driven world.

Specifically, this programme is ideal for:



## **Data Analysts and Business Analysts:**

Looking to transition into data science roles or enhance their analytical skills



## **Tech Professionals:**

Aiming to apply data science techniques to solve real-world problems



## **Business Leaders:**

Wanting to understand the potential of data and ML to drive strategic decision-making

By the end of this program, you will be able to:



### **Master Data Science Fundamentals:**

Gain a solid understanding of statistical concepts, data cleaning, and data visualisation.



### **Leverage Data and Machine Learning:**

Apply advanced techniques, such as predictive modelling, natural language processing, and ML, to extract valuable insights from data.



### **Use Generative AI:**

Learn how to use AI to generate creative content, automate tasks, and enhance decision-making.



### **Drive Business Impact:**

Use data-driven insights to optimise business operations and improve customer experiences.



### **Advance Your Career:**

Position yourself as a valuable asset in a data-driven economy.

# Elevate Your Career with Data Science



## Launching Your Analytics Career with the Most Comprehensive Curriculum

Leverage an industry-aligned curriculum, hands-on tools and applications, and dedicated career services to kick-start your data science career.



## Generative AI Accelerated Learning

Learn coding with AI, data augmentation, and solving data imbalance with practical industry cases in retail, finance, and more.



## IBM Collaboration for Global Recognition

Gain three technical certificates from IBM in SQL, Python, and prompt engineering. Attend masterclasses by IBM experts and gain real-world insights.



## Hands-On Expertise (Prior Coding Experience Not Required)

Master practical skills by using more than 20 tools and libraries in virtual labs during the programme – designed for multi-disciplinary market leaders.



## Gen AI Specialisation, GitHub, Kaggle, and the Latest Research Papers

Choose from two cutting-edge specializations, get started with your GitHub and Kaggle journey, and access four latest research papers in data science



## Flexible Learning

Balance work and studies with our blended learning approach, combining recorded video content with live interactive sessions.



## The Highest Number of Tools and Libraries Across DSBA Programmes\*

Master practical skills by learning about more than 20 tools and libraries, such as Power BI, Jupyter Notebook, Scikit-Learn, Python, and R.



## E&ICT Academy, IIT Guwahati Certification

Earn a prestigious certificate from the renowned E&ICT Academy, IIT Guwahati.



## Join the E&ICT Academy, IIT Guwahati Alumni Network

Connect with a global network of E&ICT Academy, IIT Guwahati successful alumni.



## Empowered by Emeritus Career Services

Benefit from a 6-month IIMJobs Pro-membership to accelerate your career growth and access smart resume-building automation.

*\*The highest number of tools and libraries among educators offering data science and business analytics technical certificate programmes.*

# The Edge You Need: Why This Data Science Programme Stands Out

Program Features	Advanced Certification Programme in DSBA with Gen AI by E&ICT Academy, IITG	Other Outdated/Non-Accredited Technical Certificate Programmes
Curriculum	Advanced industry-aligned curriculum on Data Science, Business Analytics, and Generative AI, covering trending topics	Outdated and traditional curriculum designed by a non-accredited Institute.
Specialisations	Exclusive specialisation in Generative AI in Data Science or Analytics in Business	No specialisations offered
Integration of DSBA live faculty masterclasses	Live masterclasses by IITG faculty, covering applications with practical examples	A curriculum covering only the basics of Generative AI with no live masterclasses.
Highest number of tools and libraries	Access more than 20 most in-demand tools such as R, Python, NumPy and ChatGPT	Curriculum covering fewer and outdated tools, with no access to masterclasses and little guidance from industry experts/faculty.
Case studies/ examples/projects	Mastering DSBA—hands-on learning with more than 30 projects, case studies, and examples from multiple domains and industries.	Limited case studies from specific domains and industries.
Recognition of certificate	E&ICT Academy, IIT Guwahati certification along with 3 IBM professional certificates that instantly add credibility to your resume	Certification from non-accredited institutes. Limited/No professional certification.
Getting started with Kaggle and GitHub portfolio	Learn how to build your GitHub portfolio and use Kaggle to stand apart from the crowd, become industry ready, and solve real world problems.	No guidance for personal brand building
Doubt resolution on the go	Get your doubts resolved within 24-48 working hours	Doubt resolution rarely offered
Flexible payment options	Yes	Yes

*\*Highest number of tools and libraries among educators offering data science technical certificate programmes.*



# Become a Master of Data Science



## 2 Specialisations

A choice between Gen AI in Data Science or Analytics in Business



## 20+

Projects and Cases with real-world applications



## 2 Weeks

Capstone project



## 2-Days

Campus immersion at IIT Guwahati for successful learners



## 20+

Tools and libraries delivered via virtual software labs



## 3

IBM certifications

## More than 20 Tools and Libraries Covered



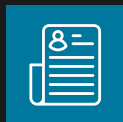
### Note:

- Programme learning hours might change due to unavoidable circumstances, and revised details will be provided closer to the programme start date.
- The list of tools covered is not exhaustive. Revised details will be provided closer to the programme start date.
- All product and organisation names are trademarks or registered trademarks of their respective holders, their use does not imply any affiliation with or endorsement by them.

# Build Your Digital Portfolio with GitHub and Ensure Market-Readiness

Get an edge in the market with your digital portfolio on GitHub. Share code and collaborate with other data science enthusiasts on projects that add credibility to your resume.

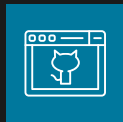
Additionally, you will also:



Create your own profile or optimise your existing one



Publish 2 projects (including the capstone project) on your GitHub portfolio



Get insights from industry experts on how/why GitHub is a key differentiator in the interview process

## Solve Real-World Problems on Kaggle for Practical Application

Practice your data science skills on Kaggle and learn from the global community. With several application based problems and use cases, it gives you the required diversity in datasets and necessary preparation that is required to excel in data science jobs.

Additionally, you will also:



Work with datasets to clean them and build different models



Improve skills through data science competitions and benchmarks against experts



Showcase projects for potential employers by building a portfolio



Gain insights on personal experience of industry experts on Kaggle



Publish a course project in Kaggle

# Get Industry-Ready with These Case Studies



## **Housing Prices:**

Analyse housing data using descriptive statistics.



## **Library Database:**

Create a database system to manage a library's collection of books.



## **Bookstore Database:**

Create a database system to track books, customers, and orders.



## **Retail Sales and Customer Management:**

Analyse sales data along with customer details to develop key insights for improved performance.



## **Reducing Lead Times and Optimising Inventory:**

Analysing the dataset of a fictional FMCG manufacturer, HU Inc. to develop recommendations for an optimised supply chain.



## **Customer Segmentation and Customer Lifetime Value (CLV) Analysis:**

Implement a customer lifetime value analysis and customer segmentation based on the dataset of a fictional retail chain, Superwallmart.

# Gain Real-World Experience with Innovative, Applied Projects



## Sales Analysis Dashboard

Build a dashboard to analyse customer orders, including total orders, sales by product category, customer segmentation, and monthly sales trends.

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## House Price Prediction

Develop a predictive model to estimate house prices based on multiple features using regression techniques.

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## Employee Churn

Understand factors influencing employee attrition, analyse employee data to identify retention risks, build predictive models for attrition forecasting, derive actionable insights for HR strategies, and enhance decision-making processes.

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## Customer Segmentation

Learn how to apply clustering algorithms (K-Means, Hierarchical), analyze clusters, and make business decisions based on cluster characteristics.

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## Customer Experience Prediction

Identify key factors influencing satisfaction outcomes, analyse data to differentiate between satisfied and neutral/dissatisfied responses, build and evaluate predictive models for satisfaction classification, derive insights for improving customer experience, and develop strategies for addressing customer concerns.

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## Time Series Forecasting

Analyse historical sales data to forecast future trends using time series analysis methods. Understand time series data, build forecasting models, evaluate accuracy, and interpret patterns in time series data.

# Get Insights into the Latest Data Science Research



## Developing Integrated Performance Dashboards and Visualisations Using Power BI as a Platform

Learn to analyse the impact of business intelligence tools on sales marketing decision-making by utilizing data integration, KPIs, and dynamic dashboards within a BI system. This study also highlights how ETL-driven data warehouses enable real-time, actionable insights for optimized business strategies.



## Collaborative Filtering with Temporal Dynamics

Learn a new dynamic model for capturing evolving customer preferences in recommender systems, addressing challenges in tracking temporal shifts. The approach, applied to Netflix's movie ratings, outperforms traditional collaborative filtering methods.



## Mining the Network Value of Customers

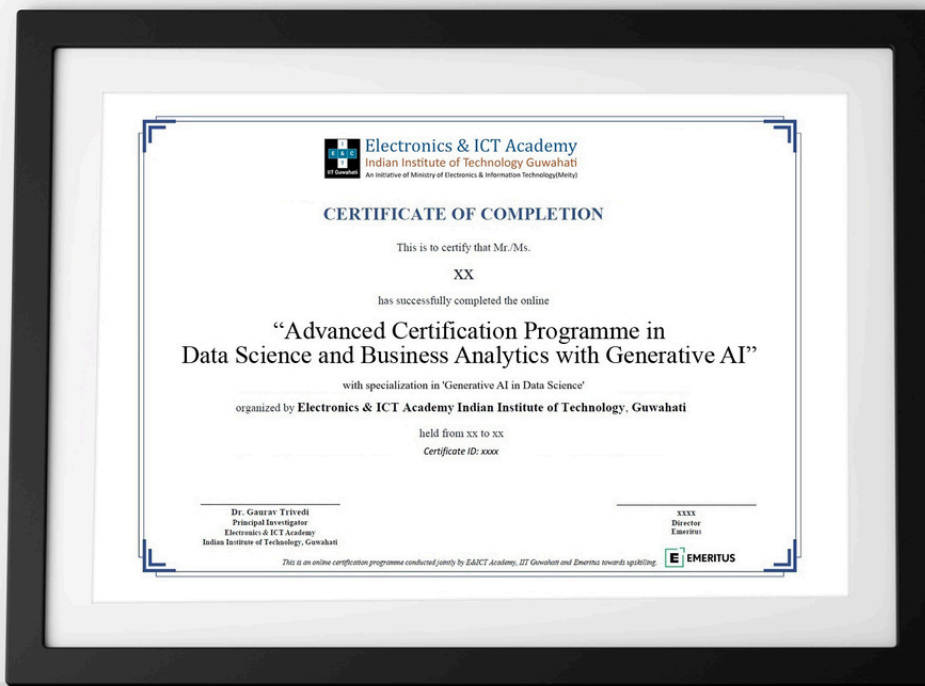
Learn a new method on how to model customer network value in marketing by treating the market as a Markov random field. This method extends traditional customer value models to include viral marketing effects, demonstrated using collaborative filtering data.





# Industry-Recognised Certificates

Each participant will be awarded a certificate of completion and E&ICT Academy, IIT Guwahati Executive Alumni status on successful completion of the programme.



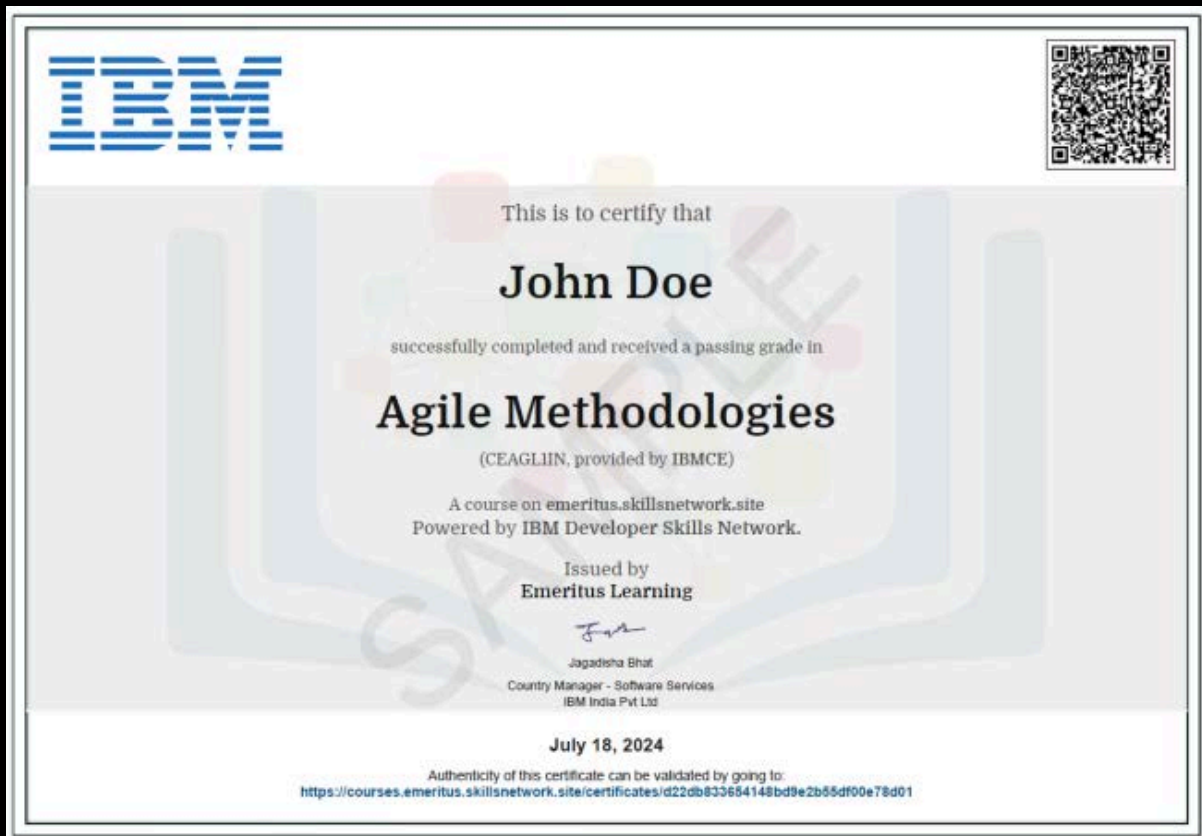
## Notes:

- All certificate images are for illustrative purposes only and may be subject to change at the discretion of E&ICT Academy, Indian Institute of Technology Guwahati.
- To receive the completion certificate, the participants must maintain a minimum 75% attendance and score a minimum of 70% in their exams.

# IBM Certificates

Each participants will be awarded three IBM certificates of completion along with the certificate from E&ICT Academy, IITG on successful completion the programme. Participants will become certified in topics including:

1. SQL and Relational Databases 101
2. Python for Data Science
3. Prompt Engineering for Everyone



## Note:

- All certificate images are for illustrative purposes only and may be subject to change at the discretion of IBM.

# Programme Modules: Section 1

## Pillar I: Fundamentals of Data Science

### Module 1 Math/Stats for Data Science

- An introduction to linear algebra
- Basic probability and statistics
- Descriptive statistics and distributions
- Hands-on exercises with descriptive statistics in R
- Working with real-world data to calculate mean, median, and variance

### Module 2 Data Analysis using R

- An introduction to R and RStudio
- Basic data manipulation in R (dplyr, tidyr)
- Data visualisation in R (ggplot2)
- Hands-on data manipulation and visualisation in R
- Data summarisation and plotting using real datasets in R

### Module 3 Data Cleaning

- An introduction to data cleaning
- Handling missing data
- Detecting and managing outliers
- Hands-on data cleaning with Python or R
- Working with messy data: cleaning, transforming, and preparing for analysis

## Pillar II: SQL Training

### Module 4 SQL Basics

- Installation of MYSQL basic terms: database, tables, records, columns, and data types in MYSQL
- Types of commands in MYSQL: DDL, DML, TCL, DCL, and DQL

# Programme Modules

## Module 5 Constraints in SQL

- Types of Constraints in MYSQL
- Creating tables using the constraints to maintain data integrity

## Module 6 Joins in SQL

- Different types of joins in MYSQL
- Combining multiple tables using various joins

## Module 7 Functions in SQL

- Various aggregation functions: Sum, Max, Min, Average, and Count
- Aggregation functions with commands such as where, group by, and having

## Pillar III: Data Visualisation and Reporting

## Module 8 Data Visualisation using Power BI

- Focus on the interface of Power BI Desktop and importing data in Power BI
- Data visualisation using various visuals, such as line chart, bar chart, pie chart, map chart, table, card, and slicer

## Module 9 Power Query

- Removing null values, duplicate records, error from data, and changing data types if required
- Merging and appending data from various sources

## Module 10 Data Modelling and DAX

- Difference between Calculated Column and Measure; various DAX Formulas
- DAX functions and data modelling

# Programme Modules

Module 11

## Publishing BI Reports

- Creating roles in Power BI Desktop to maintain row-level security
- Publishing the report on Power BI services, and assigning access to different people as per roles

Module 12

## Data Storytelling

- Essentials of story telling
- Presenting report by using the art of story telling

## Pillar IV: Python Fundamentals

Module 13

## Python Fundamentals

- The installation of Python notebook and basics of Python
- Datatypes, typecasting, expressions and variables, and string operations

Module 14

## Data Engineering Basics

- Loading data with open and writing data with open
- Handling data in Python using Pandas and doing transformation

Module 15

## Data Science Using Python Packages (Part 1)

- An introduction to Python for data science
- An overview of NumPy
- An introduction to Pandas
- Hands-on exercises with NumPy and Pandas
- Data manipulation exercises
- Working with arrays, series, and DataFrames



# Programme Modules

## Module 16

### Data Science using Python packages (Part 2)

- Advanced Pandas operations
- An introduction to Matplotlib and Seaborn for data visualisation
- Data visualisation with Matplotlib and Seaborn
- Advanced Pandas use cases

## Module 17

### Exploratory Data Analysis (EDA)

- Introduction to EDA
- Handling missing data
- Outliers detection
- Data summarisation techniques
- EDA on a real dataset
- Visualising distributions and correlations
- Creating summary statistics using Python

## Pillar V: Data Analysis & Modelling for Inferences & Predictions

## Module 18

### Inferential Statistics (Part 1)

- Probability distributions
- Normal distribution
- Binomial distribution
- Other common distributions (Poisson, Exponential, etc.)
- Hypothesis testing basics
- Null hypothesis vs. Alternative hypothesis
- p-value and statistical significance
- Type I and Type II errors
- Confidence intervals
- Constructing and interpreting confidence intervals
- Margin of error

# Programme Modules

- Central Limit Theorem
- Concept and importance
- Implications for Sampling Distributions

## Module 19

### Inferential Statistics (Part 2)

- Statistical tests
- Z-test and T-test
- ANOVA (Analysis of Variance)
- One-way and Two-way ANOVA
- Chi-Squared Test
- Chi-Squared Test for Independence
- Chi-Squared Test for Goodness of Fit
- Correlation vs. Causation
- Understanding Correlation
- Differentiating between Correlation and Causation
- Conducting Hypothesis Testing in Python
- Implementing tests using Python libraries (e.g., SciPy and Statsmodels)
- Practical examples with real data
- Statistical tests and case studies
- Applying various statistical tests
- Interpreting results and drawing conclusions
- Working on case studies requiring inferential statistics

## Module 20

### Predictive Modelling

- An introduction to predictive modeling
- Steps in building predictive models
- An introduction to regression models (Linear, Logistic, and more)
- Implementing regression models in Python
- Evaluating model performance (R-squared, MSE, etc.)

# Programme Modules

## Module 21

### Machine Learning Fundamentals

- Introduction to Machine Learning
- Supervised vs Unsupervised learning
- An overview of algorithms (KNN, Linear Regression)
- Building simple ML models using Scikit-Learn
- Data preparation and feature selection for ML models

## Module 22

### Machine Learning Fundamentals (Supervised Learning - Part 1)

- Linear Regression
- Decision Trees
- Overfitting and regularization
- Implementing Linear Regression and Decision Trees
- Evaluating model performance using cross-validation and metrics such MAE and RMSE

## Module 23

### Machine Learning Fundamentals (Supervised Learning - Part 2)

- Support Vector Machines (SVM)
- Random Forest
- Hands-on with SVM and Random Forest models

## Module 24

### Machine Learning Fundamentals (Unsupervised Learning)

- Introduction to clustering (K-means, Hierarchical)
- Dimensionality Reduction (PCA)
- Applications of unsupervised learning
- Implementing clustering algorithms in Python
- Visualising clusters and evaluating cluster quality

# Programme Modules

## Pillar VI: Advanced Topics in Data Modelling

### Module 25

### Hyper Parameter Tuning and Model Preservation

- GridSearch and RandomisedSearch
- Model persistence with joblib and pickle
- Model optimisation techniques
- Hyperparameter tuning with Python (using Scikit-Learn)
- Saving and loading models
- Working on performance improvements with tuning

### Module 26

### Time Series Forecasting

- Time series components (trend, seasonality, etc.)
- ARIMA, SARIMA, and other forecasting methods
- Stationarity in time series
- Implementing ARIMA and SARIMA models in Python
- Working with time series data (real-world datasets)
- Evaluating forecast accuracy

### Module 27

### Ensemble Modelling

- An introduction to ensemble methods
- Bagging, boosting, and stacking
- Introduction to XGBoost
- Working of XGBoost
- Implementing ensemble models (Bagging, Boosting)
- Case study on ensemble model performance

# Programme Modules

Module 28

## Association Rule Mining

- Introduction to association rules
- Apriori algorithm
- Applications of association rules in market basket analysis
- Implementing the Apriori algorithm in Python
- Hands-on project for mining association rules using a dataset (e.g., transactional data)

## Pillar VII: Domain Application with Gen AI

Module 29

## Web Analytics

- Introduction to Web Analytics
- Key metrics (Traffic, Bounce Rate, Session Duration, etc.)
- Analyzing web traffic and user behavior

Module 30

## Supply Chain Analytics

- Introduction to Supply Chain Analytics
- Key metrics (Lead Time, Inventory Turnover, etc.)
- Demand Forecasting
- Working with supply chain datasets
- Implementing demand forecasting models (e.g., time series)

Module 31

## Marketing Analytics

- Introduction to Marketing Analytics
- Customer Segmentation
- Customer Lifetime Value (CLV) Analysis
- Segmentation techniques using clustering
- Hands-on with Customer Lifetime Value models



# Programme Modules

Module 32

## Finance and Risk Analysis

- Introduction to Finance Analytics
- Case studies on financial data analysis
- Risk assessment using historical data and financial ratios
- Risk Analysis Overview
- Financial Metrics and Ratios (ROI, NPV, etc.)

## Capstone Project



# IBM Certificate Modules: Section 2

## Certificate 1 SQL and Relational Databases 101

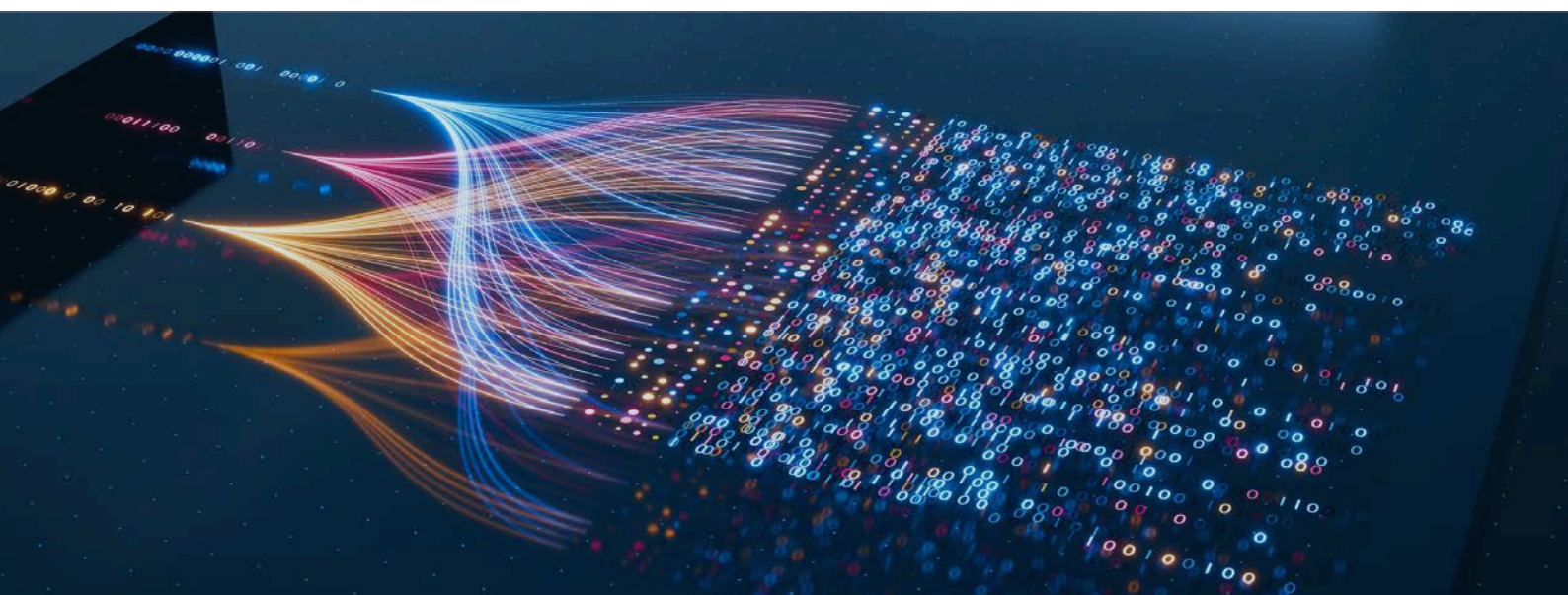
- **Module 1:** SQL and Relational Databases 101
- **Module 2:** Relational Model Constraints and Data Objects
- **Module 3:** Data Definition Language (DDL) and Data Manipulation Language (DML)
- **Module 4:** Advanced SQL
- **Module 5:** Working with multiple tables

## Certificate 2 Python for Data Science

- **Module 1:** Python Basics
- **Module 2:** Python Data Structures
- **Module 3:** Python Programming Fundamentals
- **Module 4:** Working with Data in Python
- **Module 5:** Working with NumPy Arrays and Simple APIs

## Certificate 3 Prompt Engineering for Everyone

- **Module 1:** An Introduction to Prompt Engineering
- **Module 2:** Getting Started with Prompt Engineering
- **Module 3:** The Chain-of-Thought Approach
- **Module 4:** Advanced Techniques
- **Module 5:** Final Project





# Specialisation Modules: Section 3

## Analytics in Business

### Module 1

### Web Analytics

- Introduction to Web Analytics
- Key Metrics (Traffic, Bounce Rate, Session Duration, etc.)
- Analyzing web traffic and user behavior

### Module 2

### Retail Analytics

- Introduction to Retail Analytics
- Basket Analysis
- Sales Forecasting and Inventory Management
- Implementing association rule mining for Basket Analysis
- Hands-on with Sales Forecasting and Inventory Optimisation

### Module 3

### Real-World Case Studies in Data Science

- Predictive Maintenance
- Customer Segmentation
- Fraud Detection
- Healthcare Analytics



# Specialisation Modules

## Generative AI in Data Science

### Module 1

### Introduction to Generative AI for Data Science

- Overview of Generative AI
- Generative AI in Data Science
- The Role of Large Language Models
- GenAI tools for Code creation

### Module 2

### Prompt Engineering for Data Science Use Cases

- Introduction to Prompt Engineering
- Structuring Effective Prompts for Data Science
- Optimizing Model Outputs
- Advanced prompt engineering techniques
- Applications in data science

### Module 3

### Generative AI in Data Science Workflows

- Code Generation for Data Science
- Synthetic Data Generation
- Generative AI for Data Augmentation
- Generative AI for Time Series and Anomaly Detection
- Case studies of Generative AI in business



# Learn from Renowned IIT Guwahati Faculty



## **Dr. Prithwjit Guha**

Associate Professor

Dr. Prithwjit Guha is an Associate Professor at the Department of Electronics and Electrical Engineering at IIT Guwahati. He specializes in ML, Computer Vision, and Signal Processing, with a particular focus on video surveillance, video analytics, and joint vision-language tasks like Visual Question Answering (VQA). Prior to joining IIT Guwahati, he led the Computer Vision group at TCS Innovation Labs in Delhi.

Dr. Guha obtained his BE in Electrical Engineering from Jadavpur University and later completed his MTech and PhD in Electrical Engineering at IIT Kanpur. He is also an associated faculty member at the Centre for Linguistic Science and Technology and the Centre for Intelligent Cyber-Physical Systems at IIT Guwahati.

His research explores various aspects of video and broadcast analytics, with significant contributions to visual tracking, speech discrimination, and cross-domain interaction in AI systems.

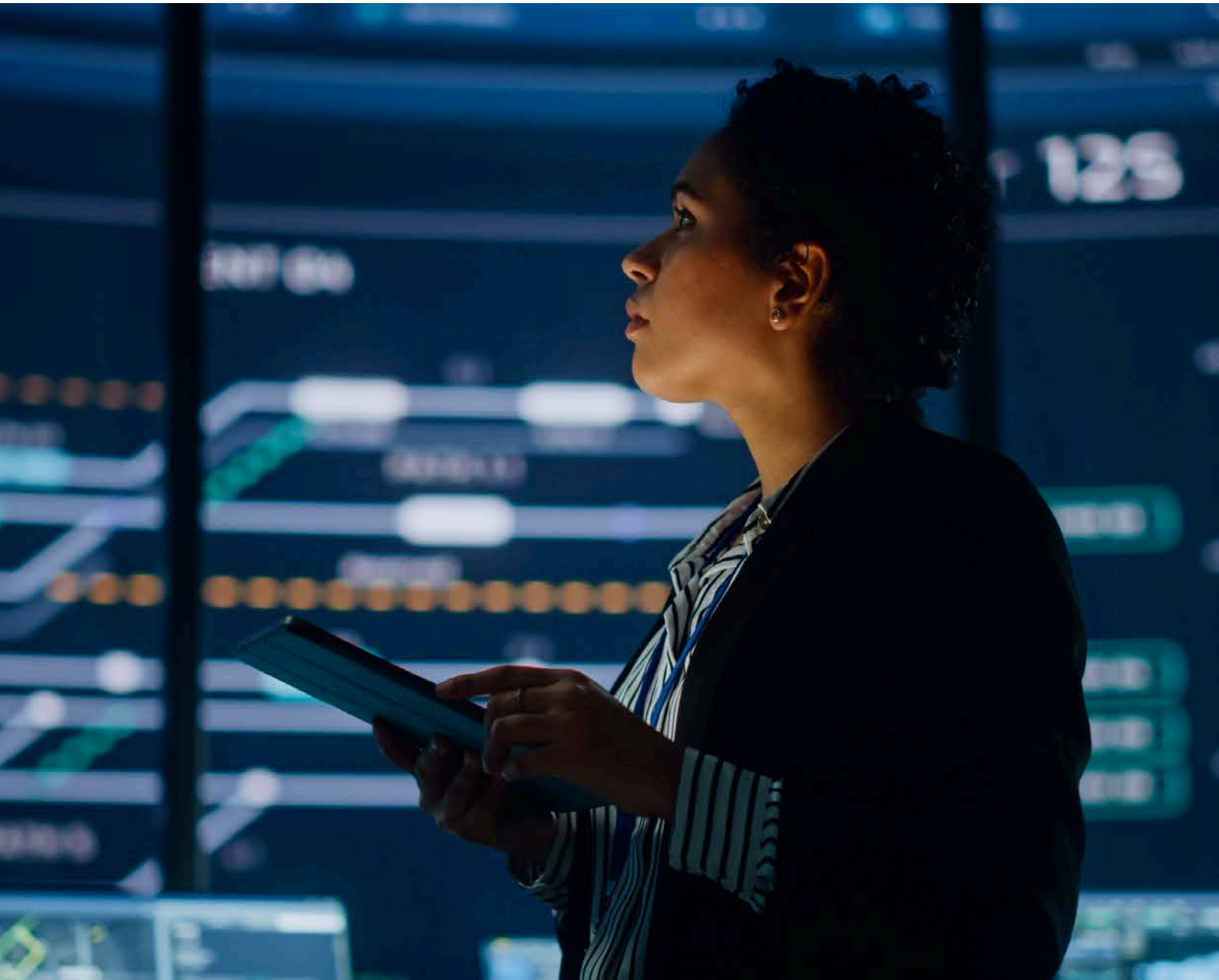
## **Publications**

- Rituparna Choudhury, Shaik Rafi Ahamed, Prithwjit Guha, "FPGA Implementation of Batch-Mode Depth-Pipelined Two Means Decision Tree", IEEE Embedded Systems Letters [2022]. , 10.1109/LES.2022.3190001
- Mrinmoy Bhattacharjee, S.R. Mahadeva Prasanna, Prithwjit Guha, "Speech/Music Classification using Phase-based and Magnitude-based Features", Speech Communication (Elsevier), vol.142 , (DOI - <https://doi.org/10.1016/j.specom.2022.06.005>), pp.34-48, [2022]
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# Fundamental Learning Outcomes

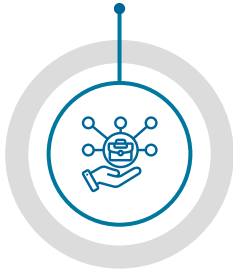
- Understand core principles, algorithms, and practical applications of Data Science and Business Analytics across various sectors.
- Develop expertise in using data science tools and programming languages to efficiently manipulate, analyze, and visualize data.
- Apply data science techniques to address real-world business challenges in areas such as marketing, finance, supply chain, and web analytics.
- Develop skills to translate complex data findings into clear, compelling stories and visualisations, making insights easily understandable and actionable for decision-makers.
- Analyze business problems with a critical and analytical perspective, utilizing appropriate data science methodologies to generate meaningful solutions.



# Emeritus Career Services Benefits

15 Recorded Sessions and Resources in the Following Categories

**IIMJobs  
Pro-Membership**



**Navigating  
Job Search**



**LinkedIn Profile  
Optimisation**



**Resume and  
Cover Letter**

**Interview  
Preparation**

## Key Benefits:







- **Pro-Membership and features of IIMJobs and Hirst:** Access to job insights recruiter action status, follow-up actions, and ability to chat with recruiters who have shortlisted your profile.
- **Spotlight on IIMJobs and Hirst:** Profile boost for applied jobs (that align with acquired certification), greater profile visibility - highlighted with institute name along with a testimony of certificate acquisition by the candidate.
- **Spotlight Plus:** All the benefits of Spotlight and added advantages like profile and rank boost in the recruiter search database.
- **Resume builder tool:** Six-month access to DIY resume builder, auto resume creator, optimisation suggestions based on key parameters, guide on information to be incorporated, and unlimited resume iterations within the duration.

Please note:

- E&ICT Academy, IIT Guwahati or Emeritus do NOT promise or guarantee a job or progression in your current job. Career Services are only offered as a service that empowers you to manage your career proactively. The Career Services mentioned here are offered by Emeritus. E&ICT Academy, IIT Guwahati is NOT involved in any way and makes no commitments regarding the Career Services mentioned here.
- This service is only available for Indian residents enrolled in select Emeritus programmes.



# Programme Details

 Programme Duration	10 months
 Programme Start Date	27 March 2025
 Programme Fee	INR 1,32,000 + GST
 Payment Options	Basic instalment plans
 Special Pricing	Up to 10% fee benefit for corporate plans
 Programme Format	Pre-recorded videos, live online sessions, faculty masterclasses, and two days optional Immersion at IIT Guwahati campus*

## Lecture Schedule:

### Industry Expert Weekly Live Session Schedule:

Saturday (11 a.m. to 2 p.m.)

### Faculty Live Masterclass Schedule:

Weekend (Saturday or Sunday)

## Eligibility Criteria:

Graduate/diploma holders can apply

Note:

*\*Only participants who have successfully completed the programme will be allowed to visit the campus.*



# About E&ICT Academy, IIT Guwahati

Electronics & ICT Academy Indian Institute of Technology Guwahati (IIT Guwahati). As an initiative of the Ministry of Electronics & Information Technology (MeitY), the Academy was set up at IIT Guwahati under the scheme of "Financial Assistance for setting up Electronics and ICT Academies". On 26 March 2015, the project started at IIT Guwahati, and the Academy was inaugurated by Prime Minister Shri. Narendra Modi on 19 January 2016. The objective of the Academy is to provide skill training to the Faculty Members (Engineering & Non-engineering) in the area of recent trends in engineering & ICT application. The Academy is designing specialised modules for imparting quality training for enhancing employability and capacity building in Electronics & ICT. In the past 7 years, the Academy has successfully conducted 400+ Programmes through conventional classroom teaching and NKN/virtual classroom mode in different institutes/Universities of North Eastern States specifically and a few in others. To date, the Academy has successfully trained 20000+ participants. The Academy has also signed a MoU with Institutes/Universities for hosting the programmes and for conducting hands-on sessions the Academy collaborated with Industries as Training/Industry Partners. The Academy is also offering online advanced certification Courses in the areas of Data Science, Artificial Intelligence & Machine Learning, Big Data, Cloud Computing, Full Stack, UI/UX and VLSI Design and trained 2000+ graduates and working professionals. The Academy has also delivered training to 140+ Assam Police and Indian Navy officials on cybercrime concepts and Data Science.

## About Emeritus

Emeritus is committed to teaching the skills of the future by making high-quality education accessible and affordable to individuals, organisations and governments worldwide. It does this by collaborating with more than 80 top-tier universities across the United States, Europe, Latin America, Southeast Asia, India, and China. Emeritus's short courses, degree programmes, professional certificates, and senior executive programmes help individuals learn new skills and transform their lives, companies, and organizations. Its unique model of state-of-the-art technology, curriculum innovation; and hands-on instruction from senior faculty, mentors, and coaches has educated more than 350,000 individuals across 80+ countries.

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