



International  
Institute of Information  
Technology Bangalore

powered by

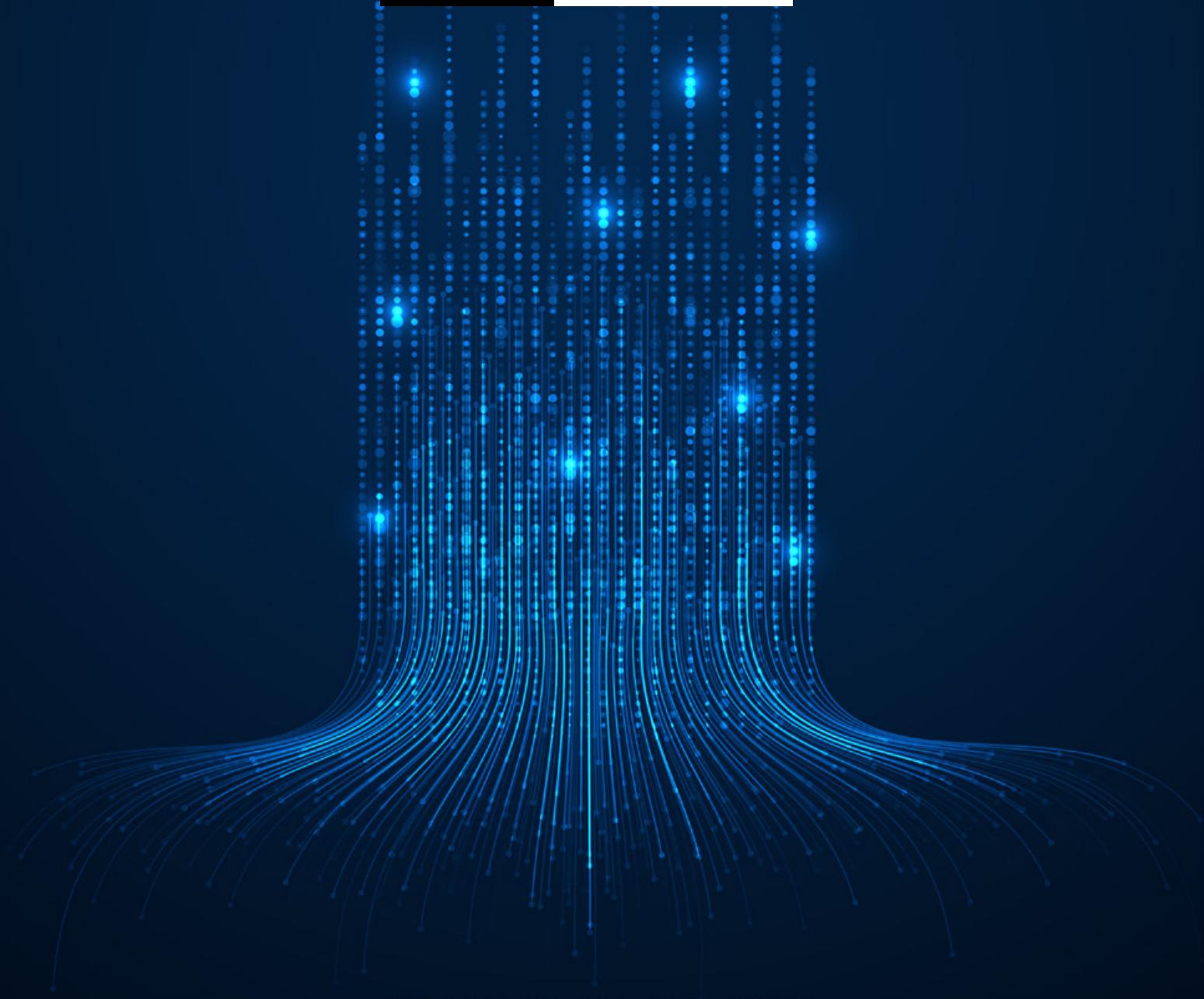
**upGrad**

Executive Diploma in

# Data Science & AI

Infused with GenAI

Duration 12-15 months



# **Largest DS & AI program in India**

with 10+ Years of Legacy &  
30,000+ Learners



## Glimpses From Convocation Ceremony





# About IIITB

The International Institute of  
Information Technology Bangalore (IIITB)

Established in 1998, IIITB is a premier institute known for its interdisciplinary approach, integrating technology with social sciences. Supported by the Government of Karnataka and the IT industry, IIITB fosters strong academic-industry partnerships and attracts top talent from across India and abroad through its merit-based selection process.

The institute has graduated over 3,500 students, many of whom work at leading IT companies globally. With a focus on research and development in fields like Artificial Intelligence (AI) and Machine Learning (ML), IIITB is recognised as a leader in AI education.

Ranked 74th in the Engineering category of the National Institutional Ranking Framework (NIRF) in 2022, IIITB continues to excel in education and research, making it a preferred destination for aspiring technologists and future leaders.



**AICTE**



**UGC**

# ABOUT upGrad

“upGrad is a leading global learning and workforce development company. We’re on a single-minded mission of powering career success for every member of the global workforce as their trusted lifelong learning partner. Established in 2015, we have over 10 million learners who have upskilled in a range of online and offline programs from top universities in India and the world.”



**Ronnie Screwvala**  
Co-founder & Executive Chairman



# Current Industry Trends

**14 LPA**

Average salary  
for Data Scientists  
in India (2025)

Source: Glassdoor

**57.5%**

CAGR of Indian  
Data Science market  
till 2028

Source: Milleniumpost

**50%**

Increase in search  
volume for 'Data Science'  
since 2020

Source: Exploding Topics

**36%**

Increase in growth of  
Data Science jobs  
by 2031

Source: Harvard Extension School

**\$378.7B**

Size of global  
Data Science market  
by 2030

Source: Milleniumpost

# Program Highlights

Here are the **top reasons** why you should consider this program



## Future-Ready Curriculum

Master In-Demand and Trending Competencies



## Personalised Learning Experience

Learning Experience Tailored to Your Needs



## Specialisations

Specialise in two in-demand Data Science specialisations



## In-Demand Tools

100+ Industry Tools, Languages, Libraries



## Outcome-Driven Learning Experience

Personalised Portfolio-Building Support and Career Preparation Sessions



## Best-in-Industry Experts

Decorated IIITB Faculty and Top Industry Practitioners



## Golden Learning Ratio

Perfect Blend of Mathematics, Technology, and Business Understanding



## Hands-on Learning

Solve 30+ Domain-Focused Assignments and Case Studies

## Offline Graduation Function

On-Campus Graduation Ceremony for a Complete Program Experience

# Program Impact Success Stories

## Before upGrad

Ujwala Potharlanka

System Engineer



## After upGrad



Data Analyst

## Before upGrad

Sandhyarani Sahoo

Business Associate



## After upGrad



Associate Consultant

## Before upGrad

SaiGoutam Kolluru

Optimisation Specialist



## After upGrad



Enterprise Architect

## Before upGrad

Aditya Verma

Operation Executive



## After upGrad



Data Analyst

## Before upGrad

Abhaya Pratap Singh

Associate Consultant



## After upGrad



Big Data Engineer

### Sandeep Varma

- Assistant Manager
- Assistant Manager
- Business Analyst
- (HSBC)

### Govind

- Consultant
- Senior Associate
- Consultant
- (INFOSYS)

### Vandana Maurya

- Database Tech Lead
- SQL Server Database Administration
- (Citius Tech Pvt Ltd)

### Joseph Jerey

- Development Engineer
- Quality Leader
- (IKEA of Sweden AB)

### Souvik Mitra

- Data Analyst
- Business Analyst
- (Xiaomi)

### Deepak Baliya

- Software Engineer
- Sr Software Engineer
- (Oak North)

### Rohit Ambasta

- Data Analyst, Vendor BI (contractual position)
- Senior Data Analyst
- (GE Renewable Energy)

### Prateek Aneja

- Software Engineer
- Machine Learning Consultant
- (Tardid Technologies)

## Our Transition Statistics

INR 1.23 Cr Highest Salary

433% Highest Hike

50% Average Hike

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# Program Completion Certificate



Earn valuable credentials with an Executive Diploma in Data Science and Artificial Intelligence. Join India's largest DS & AI alumni network of over 10,000 professionals.

# Earn Second Certificate

π Professional pack for dual specialisations



In just 3 more months learners can earn 1more specialization across both  
Data Science & Machine learning specializations

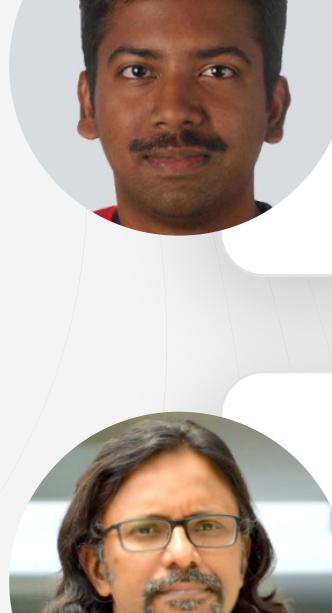
# Faculty



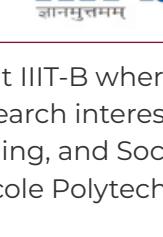
**Prof. Debabrata Das**  
Director, IIIT Bangalore



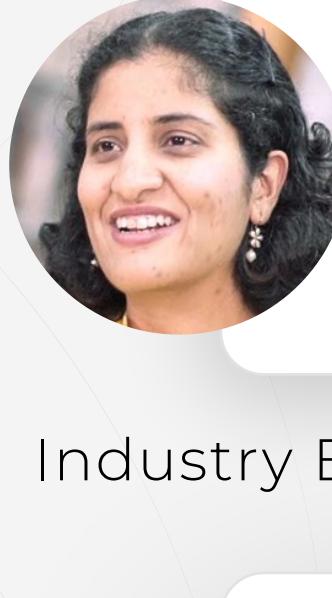
He has received his PhD from IIT-KGP. His main areas of research are IoT and Wireless Access Network.



**Prof. G. Srinivasaraghavan**  
IIIT Bangalore



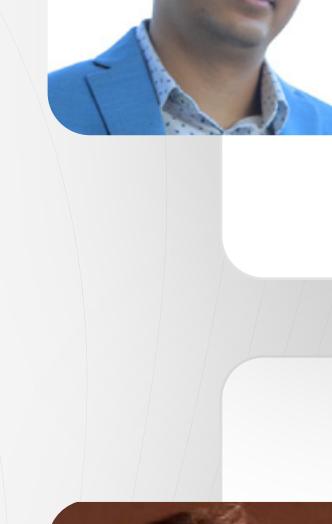
Prof. Srinivasaraghavan has a PhD in Computer Science from IIT-K and 18 years of experience with Infosys Technologies and several other companies.



**Prof. Dinesh Babu Jayagopi**  
IIIT Bangalore



Dr. Dinesh is currently an Associate Professor at IIIT-B where he heads the Multimodal Perception Lab. His research interests are in Audio-Visual Signal Processing, Machine Learning, and Social Computing. He obtained his doctorate from Ecole Polytechnic Federale Lausanne (EPFL), Switzerland.



**Prof. Chandrashekhar Ramanathan**  
Dean (Academics), IIIT Bangalore



Prof. Chandrashekhar is a faculty member at IIIT-B since 2007 serving as professor, researcher and administrator. He has been working in the field of Computing for over 25 years in various capacities across industry and academia.



**Prof. Tricha Anjali**  
Ex-Associate Dean, IIIT Bangalore



Prof. Anjali has a PhD from Georgia Institute of Technology as well as an integrated MTech (EE) from IIT Bombay.

# Industry Experts

**Abhishek Vijayvargia**  
Senior Data Scientist



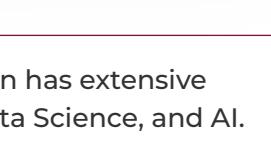
Having worked with Microsoft as a Senior Data Scientist, he is an alumnus of IIT Kharagpur with 10+ years of experience in a Data Science domain



Ex-Senior Data Scientist

**Anand**

CEO



CEO, Gramener A gold medallist from IIM Bangalore, an alumnus of IIT Madras and London Business School, Anand is among the top 10 data scientists in India with 20 years of experience.



Faculty



Principal



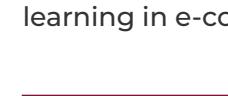
Ex-Consultant

**Manish Shukla**

Head of Generative AI



Leading cutting-edge GenAI platform development at NatWest Group. Expertise in OpenAI products and MLOps for optimisation of operational efficiency and seamless project delivery with high user satisfaction.



Release Manager



Release Manager



Certified Scrum Master

**Deependra Singh**

VP & Head of Data Science



Over 15 years of experience in leading analytics practices, data science, deep learning, and AI product development. Successfully led teams at Junglee Games, American Express Digital Business, and National Insurance Company, pioneering key projects like the analytics engine for the GOI PMJAY policy. Respected speaker at top educational institutes like IIM Hyderabad, Birla Institute of Technology and Science Mesra, and NMIMS.



Team Lead - Product



Machine Learning Engineer



Machine Learning Research Engineer

**Sajan Kedia**

Sr. Engineering manager



Senior Engineering Manager, Hotstar Sajan has extensive experience in the field of ML, Big Data, Data Science, and AI.



Sr. Engineering manager



Machine Learning Engineer



Machine Learning Research Engineer

**Mirza Rahim Baig**

Startup Mentor



Analytics Lead, Zalando Mirza is a veteran professional with 10+ years of experience in application of data science, machine learning in e-commerce and healthcare.



Team Lead - Product



Marketing Analytics



Ex-Analytics Lead

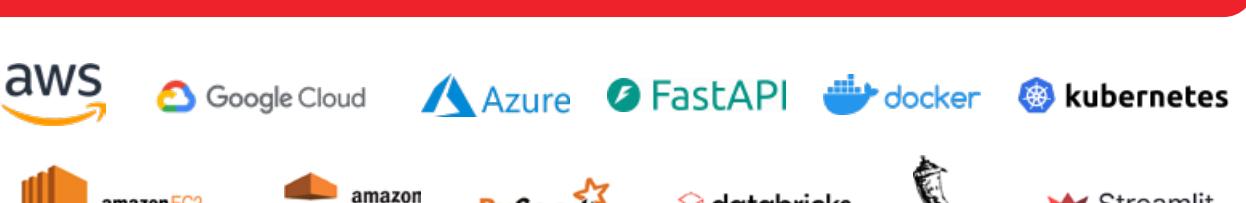
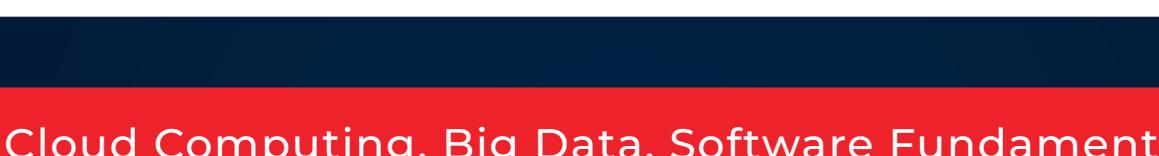
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# More than 100+ In-Demand Industry Tools and Technologies

## Python for Data Science



## Data Analytics and Business Intelligence



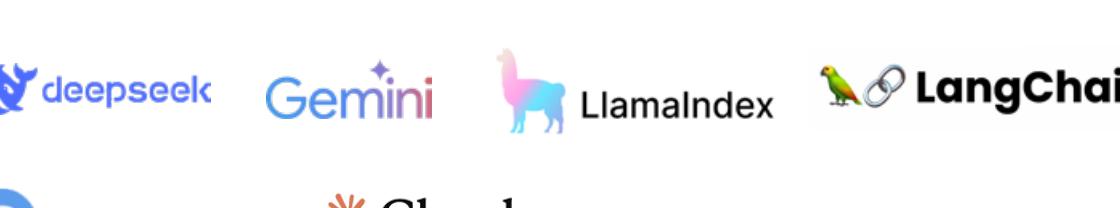
## Cloud Computing, Big Data, Software Fundamentals



## Foundations of Machine Learning



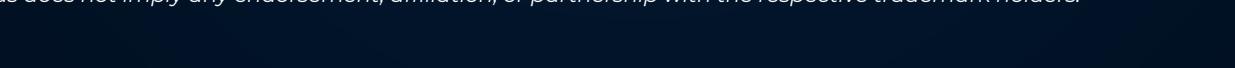
## Deep Learning and Natural Language Processing



## Generative AI



## Data Engineering & Big Data Analytics



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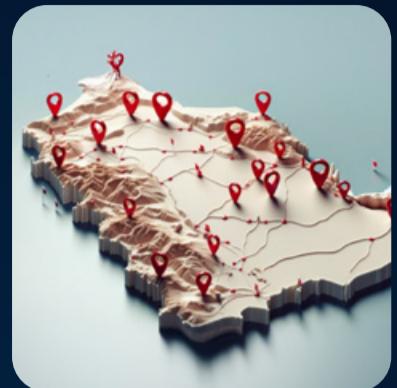
# Assignments and Case Studies from 12+ In-Demand Business Domains



**Retail & Ecommerce**  
ETL Pipelining with Spark



**Media & Entertainment**  
Data Analysis using SQL



**Transportation**  
EDA using Python



**Education**  
Model Selection using Sklearn



**Civil Engineering**  
Classification using CNNs



**HR**  
Semantic Classification using Word2Vec



**Manufacturing**  
Regularisation using Sklearn



**Healthcare**  
Classification using Sklearn



**Law**  
RAG using LangChain



**InfoSec**  
Feature Engineering using Sklearn

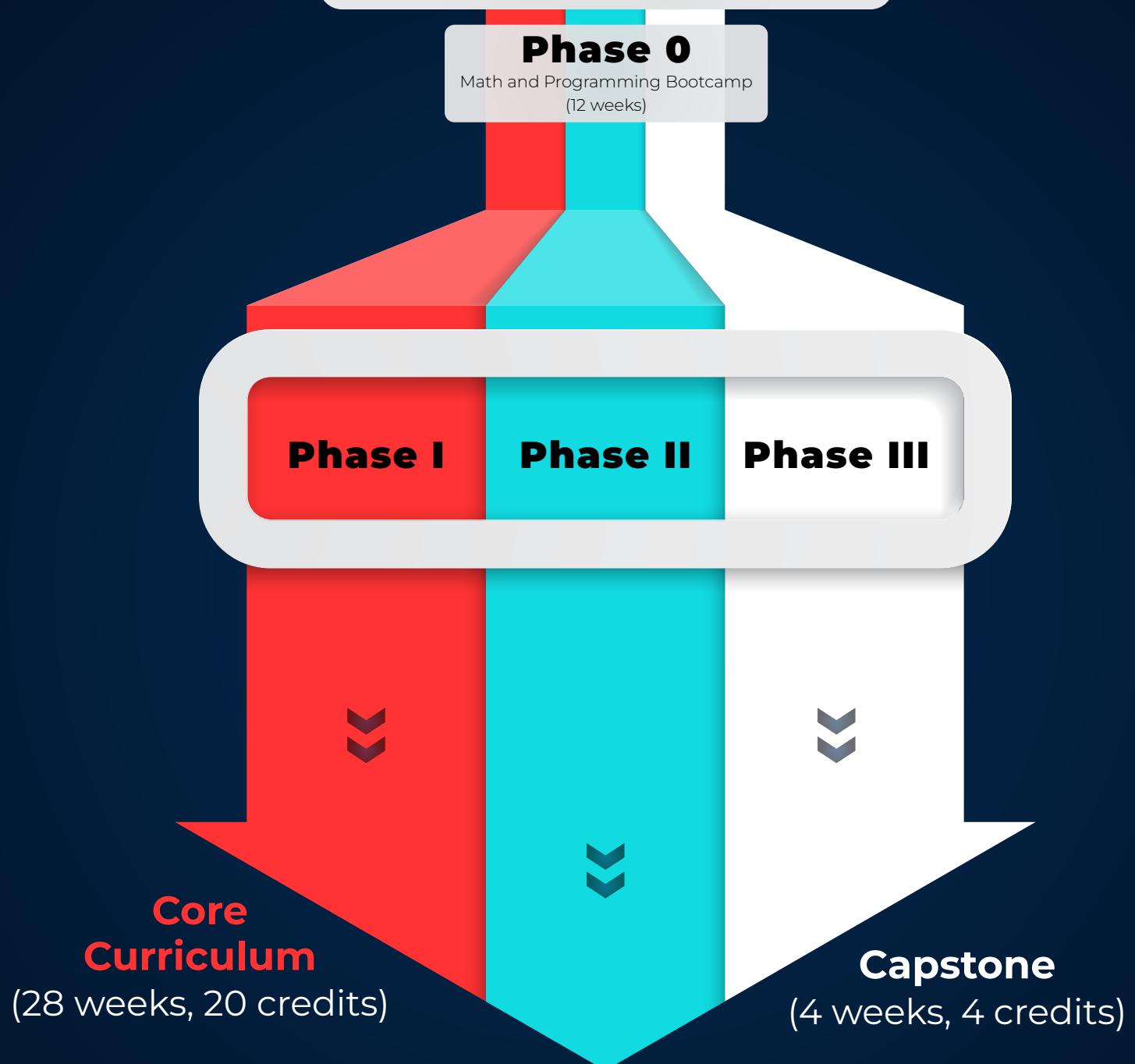


**FMCG**  
Big Data Analysis using Spark



**BFSI**  
Sequence Data Prediction using RNN

# Your Program Journey

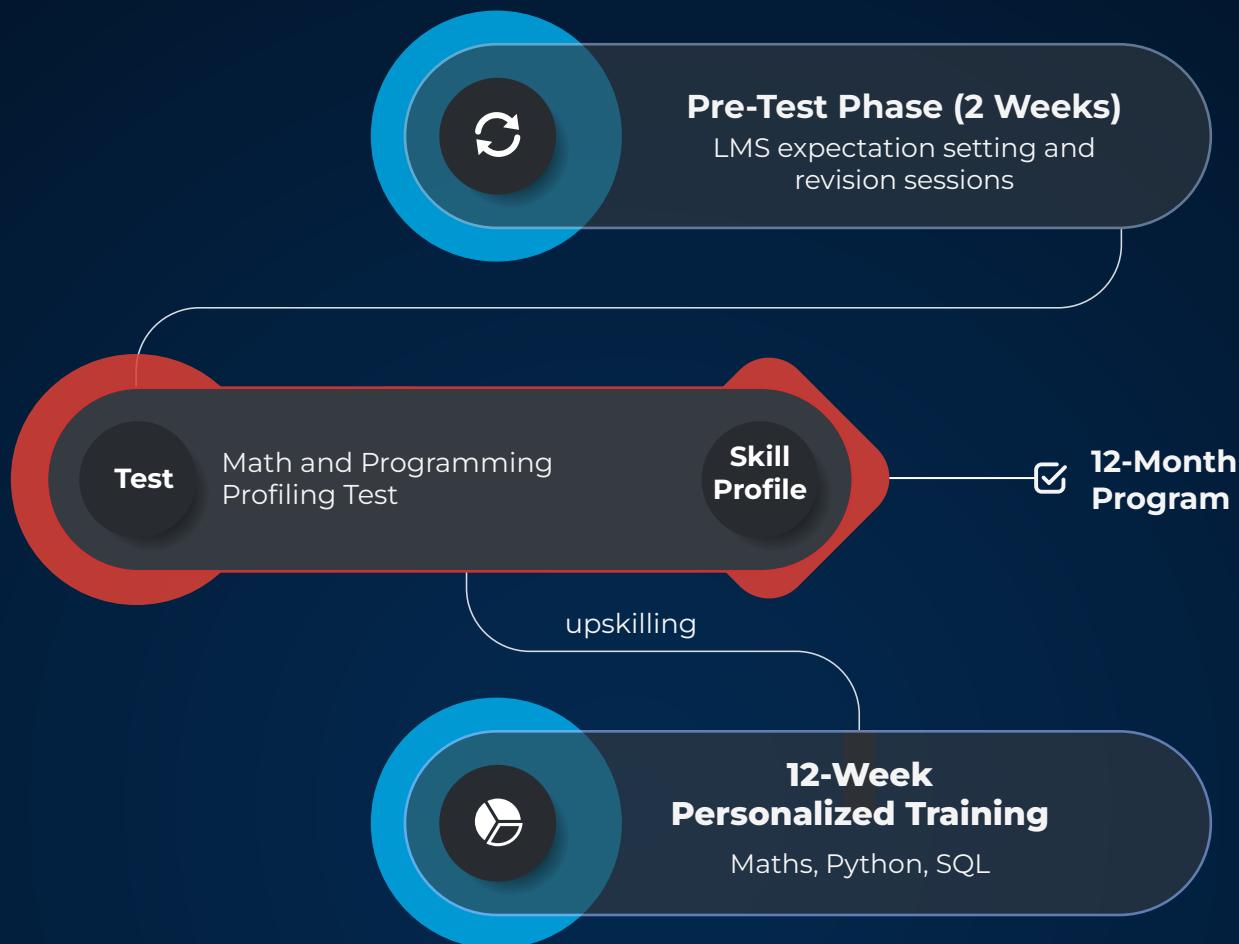


Data  
Analysis

Data  
Engineering

# Applied Math and Programming Bootcamp

Personalise the initial 3 months of the program to your profile



Topics: Sets, Combinatorics, Basics of Probability, Conditional Probability, Descriptive Statistics, Functions, Vector Algebra, Derivatives, Integrals, Coding Environments, Variables, Data Types, Syntax, Conditionals, Loops, Functions, Lists, Sets, Tuples, Dictionaries, Introduction to MySQL, Basic SQL Querying

Marks Structure: Total marks - 100

- Section A - 40 marks (basic mathematics)
- Section B - 60 marks (basic programming)
- Passing marks - 25 marks in section A & 35 marks in section B

*No added cost to be paid for the bootcamp  
We make sure that you are well-equipped to draw the most benefit from the program!*

# Core Curriculum

The core phase of the curriculum will equip you with the most up-to-date and industry-relevant skills and technologies for data science and machine learning such as programming and mathematics, data analysis tools and techniques, cloud computing and big data analytics, and foundational topics in machine learning, deep learning, and natural language processing.

## Topics

### Advanced Mathematics for Data Science and Machine Learning

Master essential mathematical concepts to understand how to work with large amounts of data and train efficient machine learning models

- » Conditional Probability and Probability Distributions
- » Advanced Linear Algebra and Linear Transformations
- » Multivariate Calculus

### Advanced Programming for Data Science and Machine Learning

Wrangle real-world data using universal programming languages such as Python and SQL, and use GenAI for generating and debugging code faster

- » GenAI for Coding and Problem-Solving
- » Object-Oriented Programming
- » Python Data Science Libraries
- » Database Design and SQL Querying with MySQL
- » Introduction to NoSQL Databases

### Data Analysis and Exploration

Implement industry-standard statistical methods using tools such as Python, Tableau, and Power BI to analyse data and derive business insights

- » Data Analysis with Python
- » Exploratory Data Analysis
- » Inferential Statistics and Hypothesis Testing
- » Data Analysis and Visualisation with Power BI and Tableau

### Cloud Computing and Big Data Fundamentals

Take your data processing and analysis workflows to the cloud and work with larger amounts of data to derive enterprise-scale business insights

- » Cloud Computing with AWS, GCP, Microsoft Azure
- » Big Data Analysis with PySpark

### Foundations of Machine Learning

Train industry-standard machine learning models to automate insight generation and predict business metrics behaviour

- » Machine Learning Paradigms
- » Linear and Logistic Regression
- » K Nearest Neighbors
- » Regularisation and Hyperparameter Tuning
- » Decision Trees and Ensembles
- » Clustering Models

### Deep Learning and Natural Language Processing

Build and train deep neural network models for different kinds of business data such as images and sequences

- » Artificial Neural Networks
- » Convolutional and Recurrent Neural Networks
- » Lexical, Syntactic, and Semantic Processing

### Deployment Fundamentals

Share and deploy your insights and machine learning models so that other collaborators can work with your contributions

- » Containerisation and Deployment Tools

- » Version Control

## Projects

- » **Querying with SQL**

Analyse Spotify music data for targeted recommendations or NDAP insurance data for risk assessment



- » **Exploratory Data Analysis**

Analyse NYC taxi operations for efficient taxi positioning or US beer production data for better brewery operation management



- » **Big Data Analysis**

Analyse Mercari products data for better targeted recommendations or customer interaction data to enhance customer engagement



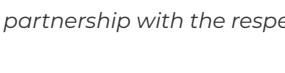
- » **Linear Regression**

Predict household energy consumption using appliance energy readings data to increase power consumption efficiency or parcel delivery time for Porter using historical delivery data for better planning and management



- » **Deep Learning**

Predict stock prices of Microsoft, Amazon, Google, IBM, using their historical stock price variations or temperature/pressure readings in Morocco using historical weather data



# business analysis and project management principles.

## Topics

### Advanced Machine Learning

Train advanced industry-oriented machine learning models for enhanced predictive power and stronger business insight generation

- ▶ Support Vector Machines and Naive Bayes
- ▶ Feature Engineering and Model Selection
- ▶ Dimensionality Reduction

- ▶ Assoc
- ▶ Explai

## Advanced Analytics

### Wrangle with enterprise-level Tables and Data Pipelines

Tableau and Power BI, and use GenAI Integrations to automate analytics storytelling workflows

- » **Advanced Excel and Power BI with Copilot**
- » **Advanced Tableau**

- ▶ Data Storytelling Principles
  - ▶ Machine Learning with PySpark

## GenAI for Data Analysis

Prompt large language models (LLMs) for simplifying and automating data analysis tasks and understand the advantages and disadvantages of GenAI-based methods

  - ▶ Fundamentals of GenAI and Prompt Engineering
  - ▶ Advanced Prompt Engineering
  - ▶ Large Language Model (LLM) Frameworks such as LLaMA
  - ▶ GenAI ChatBot System Design and Development
  - ▶ Data Security and Governance
  - ▶ AI Ethics and LLM Safety

# Business Analytics

## Transform your ana

by translating mathematical language into realistic business metrics

- ▶ Requirements Gathering and Guesstimates
- ▶ Business Problem Solving and Project Management
- ▶ Data Science Applications in Finance and Ecommerce

- ▶ **Feature Engineering and Model Selection**  
Predict fraudulent insurance claims using the Mendeley farmers insurance claims dataset or network intrusion events using historical network activity data
  - ▶ **Advanced Data Analytics**  
Analyse Namma Yatri travels data to understand customer behaviour and

route optimisation for  
customer transactions  
to improve product

- ▶ **Advanced GenAI for Analytics**  
Analyse Amazon customer reviews to identify prevalent sentiments and themes to improve product offerings and enhance shopping experience

- Customer satisfaction or Chapter 1: Customer feedback to derive actionable insights for business improvement

► **Essentials of Business Analytics**

Analyse HDFC Bank's annual reports and create a BCG matrix to provide strategic business recommendations or Snapdeal app feedback data to create a business requirement document for improving app functionality



## Data Eng

- distributed data processing frameworks, cloud frameworks and technologies, and large-scale warehousing principles.

## Topics

### Large-Scale Distributed Data Processing

Design robust distributed frameworks, both on-premises and in the cloud, for big data processing to handle vast amounts of data in parallel.

  - ▶ **Distributed Data Processing with Hadoop**
  - ▶ **Data Ingestion with Sqoop/Flume and HDFS**
  - ▶ **Cloud Native SQL Databases such as Amazon Aurora and Azure SQL**
  - ▶ **Cloud Native NoSQL Databases such as Amazon DynamoDB, Google BigTable, and Azure Cosmos DB**
  - ▶ **Linux and Java Programming**

### Data Warehousing Principles and Methodologies

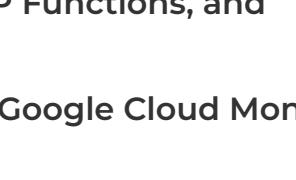
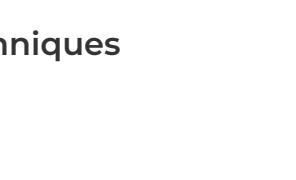
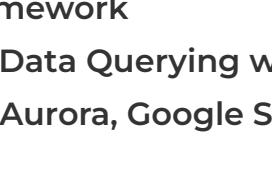
Understand industry-standard data warehousing principles and best practices for building data warehouses.

  - ▶ **Datawarehousing and Cloud Data Warehouses**
  - ▶ **Cloud Data Warehouses such as Amazon Redshift and Azure Synapse Analytics**
  - ▶ **Understanding ETL and ELT Pipelines**
  - ▶ **Advanced Data Modeling Concepts and Dimensional Modeling**

### Large-Scale Data Pipelining

Build complete end-to-end data pipelines and data lakes to extract, transform, and load data for both batch-wise and real-time business insights.

  - ▶ **End-to-End Data Pipelining Fundamentals**
  - ▶ **Pipeline Automation with AWS Lambda, AWS Step Functions, and Azure Automation**
  - ▶ **Data Monitoring with Amazon CloudWatch Metrics and Azure Monitor**
  - ▶ **Feature Stores and Vector Databases**
  - ▶ **Real-Time Analytics with Flink, Kafka, and Apache Beam**
  - ▶ **Real-Time Analytics with Amazon Kinesis DataStream, AWS Lambda, AWS DataFlow, Azure Stream Analytics and Event Grid**



## ► Multicloud and Hybrid Cloud Operating Principles

### Modern Data Engineering Technologies

Work with some of the most in-demand advanced data

- ▶ Modern NoSQL Databases
- ▶ Infrastructure as Code (IaC) with Terraform
- ▶ Data Architecting Principles
- ▶ Data Security and Governance
- ▶ Decentralized Governance and Data Mesh

purchasi  
preferen  
identify

- ▶ **Hadoop Processing**  
Analyse Iowa liquor sales data to identify purchasing trends and customer preferences or Los Angeles crime data to identify crime hotspots and trends
  - ▶ **Data Pipelining and Warehousing**  
Develop an ETL pipeline to aggregate and standardise banking data to enhance financial decision making using Wikipedia and currency exchange rates data or aggregate and analyse California traffic collision data to drive road safety improvement measures
  - ▶ **Real-Time Data Analytics**



## Capstone that Adapts to Your Preference

### Infuse our Capstone with Your Data

Modify existing projects as per your industry data and problems

### Bring Your Own Capstone

Work on a completely novel project of your choice and solve problems that excite you

### Pre-Designed Industry Capstone

Choose one of our existing projects that cover in-demand trending industry domains

## Bring Your Own Capstone

Design your own capstone project relevant to your domain and interest, and get feedback throughout your capstone stages



Identify a real-world problem relevant to your domain



Source datasets aligned with your business problem



Design and implement your solution



Document your efforts and present your findings



Continuous expert feedback at every step of capstone

# Build A Strong Portfolio



## Commits

Demonstrate consistency, collaboration, and coding discipline

## Code

Showcase well-documented repositories

## Projects

Host end-to-end DS/ML/AI projects that highlight real-world problem-solving

## GitHub helps with

- Validating coding skills
- Showing growth and consistency
- Being interview-ready for Tech roles

## Kaggle helps with

- Building credibility in data science circles
- Applying learning to real datasets
- Speaking confidently in Tech interviews

## Headline

Concise summary of goals, competencies, and professional identity

## Summary

Engaging overview of learnin and career journey

## Projects

Showcase practical experience, outcomes, and skill application

## LinkedIn helps with

- Improving visibility with recruiters
- Positioning better for job openings
- Networking with peers and mentors in the field

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# Microsoft-Certified Advantage –

This program doesn't just prepare you for the world of Data Science & AIML—it gives you the Microsoft edge.

Learners earn industry backed certification from upGrad in association with Microsoft by completing specially designed modules integrated into the program, boosting both credibility and career readiness.



## Microsoft Learn content modules Certification Modules:

- Introduction to Generative AI Concepts
- Introduction to GitHub Copilot
- Design & Manage Analytics Solutions using Power BI
- Designing & Implementing a Data Science Solution on Azure

# Rich and Dedicated Live Support

## Industry Expert Sessions

Engage with industry practitioners as they help you master in-demand skills and concepts using a demonstrative hands-on approach



## IIITB Faculty Sessions

Learn from some of the most accomplished academicians as they take your knowledge and understanding of data science to another level

## Just-In-Time Interview Support

Participate in Technical and HR mock interviews designed to boost your confidence and prepare you to ace interviews.

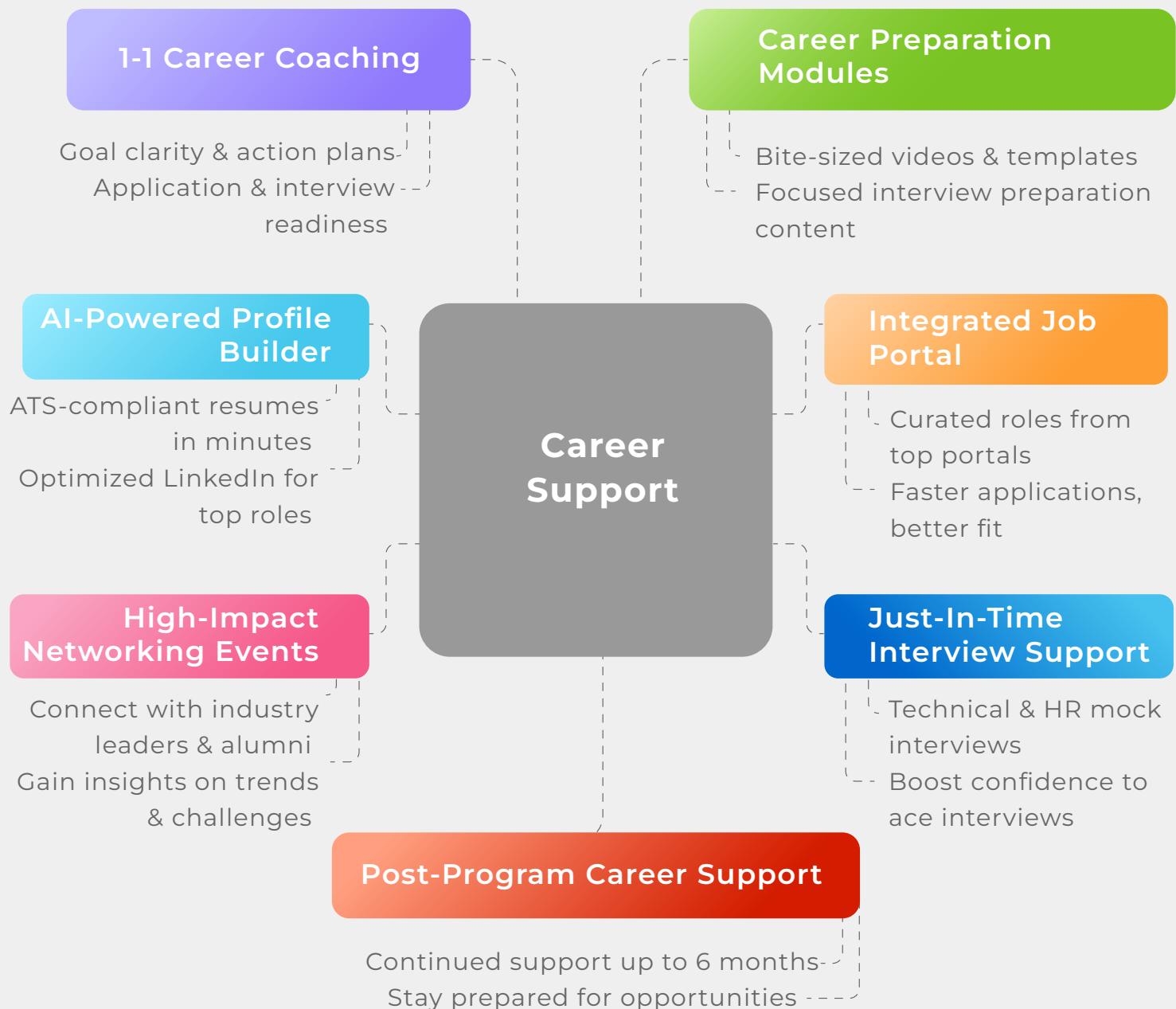
## Career Coaching Sessions

Engage in Career Coaching Sessions via Career preparation modules, High-impact networking events and Just-in-time mock interviews

## Daily doubt resolution sessions

Join doubt resolution session slots, that are available daily, and have an expert available to resolve your queries for a smooth learning journey

# Effective and Complete Career Support



## Student Support

### Telegram channel for learner communications

Cohort Telegram channel for timely program updates and announcements.

### Non-academic and non-technical query assistance

24 X 7 m-AI-ask bot support for non academic assistance.

### Completion Support

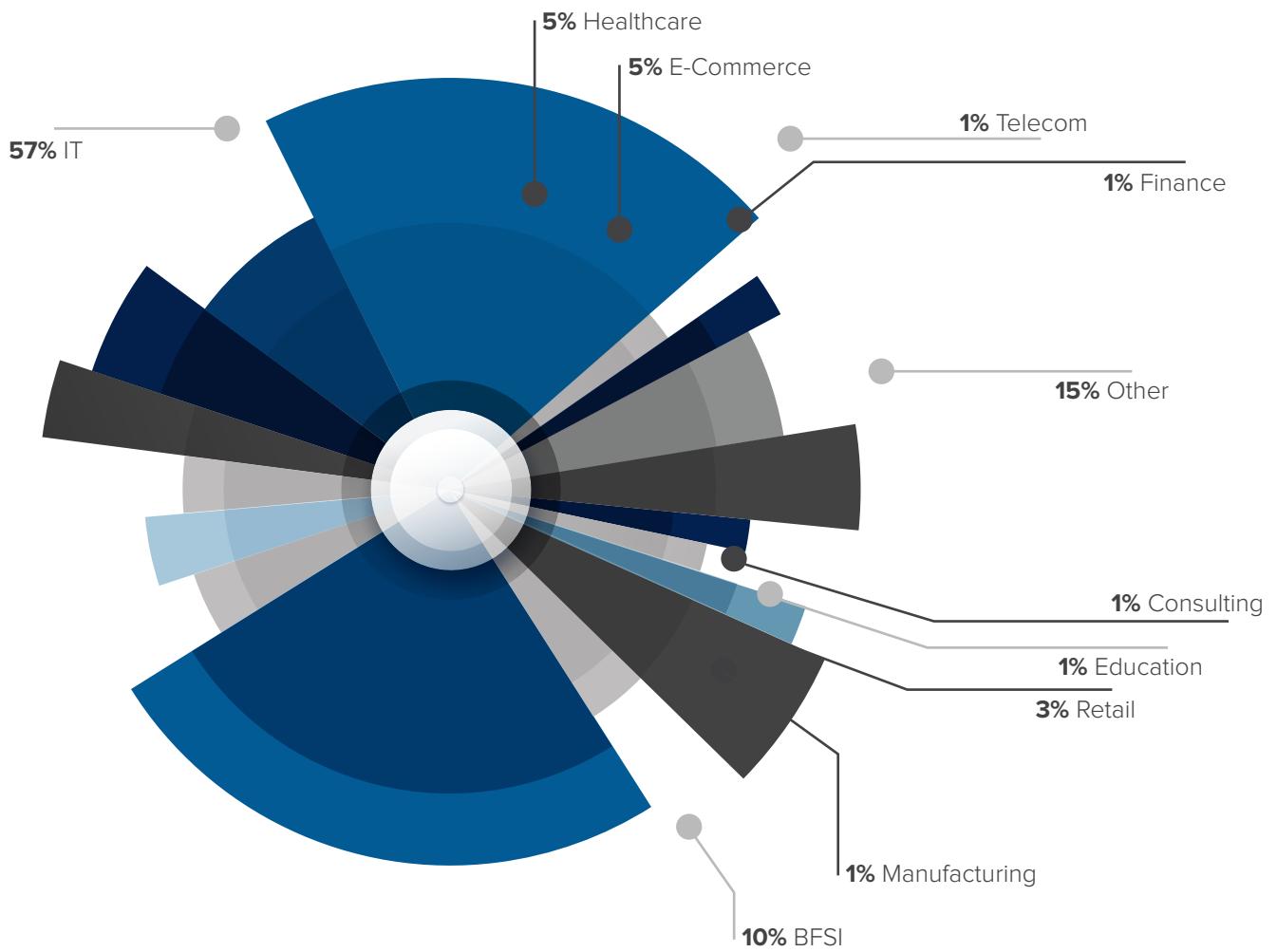
Personalised assistance for smooth program completion, managing backlogs, and cohort deferrals with free and paid waiver options.

### Financial benefits

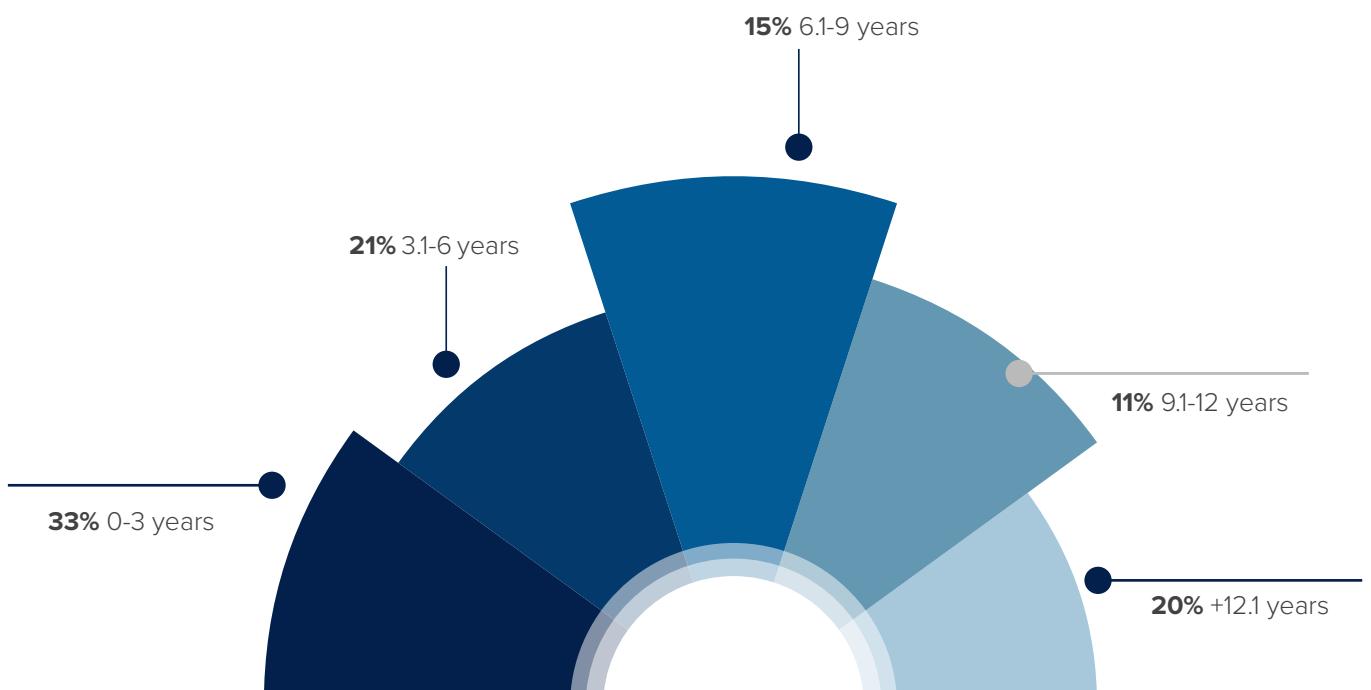
Access benefits like referrals and repeats by sharing details with your program co-ordinator or student support executive.

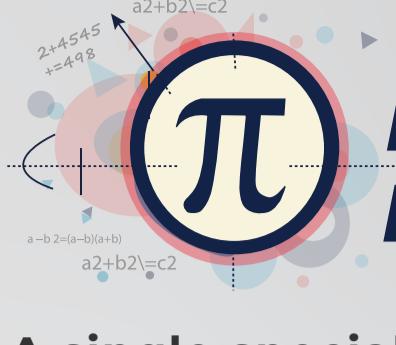
# Meet the Class

## Industries Our Students Come From



## Work Experience





# Professional pack

## A single specialty is no longer enough.

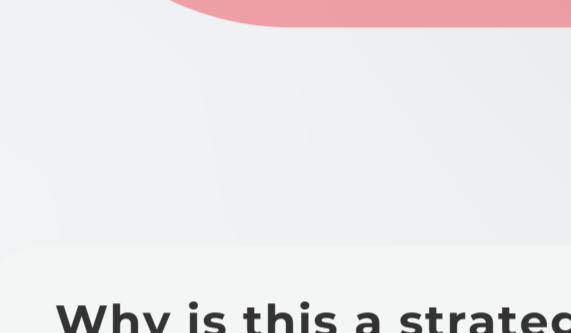
For years, the T-shaped professional was considered the gold standard—someone with broad knowledge across multiple areas (the top of the “T”) and deep expertise in one core area (the vertical stem). This model worked well in stable environments where projects moved slowly, and roles were clearly divided.

But today’s AI-driven, high-velocity world has exposed the limits of the T-shape. Knowledge silos, handoff delays, and rising complexity mean one deep skill is no longer enough.

Today’s employers need  $\pi$ -shaped professionals - someone with two deep, complementary specialisations while maintaining broad knowledge across domains, who can own entire project lifecycles without team dependencies, bridging the gap between development, operations, and analytics seamlessly.

### Introducing The $\pi$ Professional Pack

Add an extra specialisation  
in just 3 months



#### STEP 1

##### Choose your primary foundation

Select your core specialisation:

**Data Engineering, Data Analytics, Generative AI or MLOps**

#### STEP 2

##### Add your strategic second specialty

In the latter half of your program, unlock a complete second track featuring:

- ⌚ Full curriculum coverage
- 💻 Live interactive sessions with industry experts
- 🛡️ Dedicated faculty support
- 🤝 Expert mentorship across both domains

### Why is this a strategic career investment?

👉 Expert in two complete specialisations

👉 Industry-validated skill combinations based on hiring data

👉 Hands-on experience in both domains

👉 Portfolio projects demonstrating  $\pi$ -shaped expertise

### Your Competitive Edge:

While others graduate with single specialisations, you emerge as a  $\pi$ -shaped leader ready to:



Own complete project lifecycles



Bridge team silos and communication gaps



Command premium positions in India's GCC & IT sectors



Adapt quickly as AI continues reshaping the industry

### Popular specialisation combos

#### GenAI + MLOps

#### Why Gen AI + MLOps?

Enables end-to-end ownership of Gen AI models from fine-tuning to deployment, monitoring, and safety. This pairing creates a professional who can not only innovate but also reliably deliver and manage that innovation.

#### GenAI + Analytics

#### Why GenAI + Analytics?

Unlocks AI-driven business insights with a combination of natural language queries, auto-reporting, and data storytelling. This pairing is about creating smarter and more accessible business insights.

#### MLOps + Data Engineering

#### Why MLOps + Data Engineering?

This is the ultimate combination for building robust and scalable AI infrastructure. Enables you to build an automated, end-to-end machine learning factory that is efficient, reliable, and ready for production demands.

#### GenAI + Data Engineering

#### Why GenAI + Data Engineering?

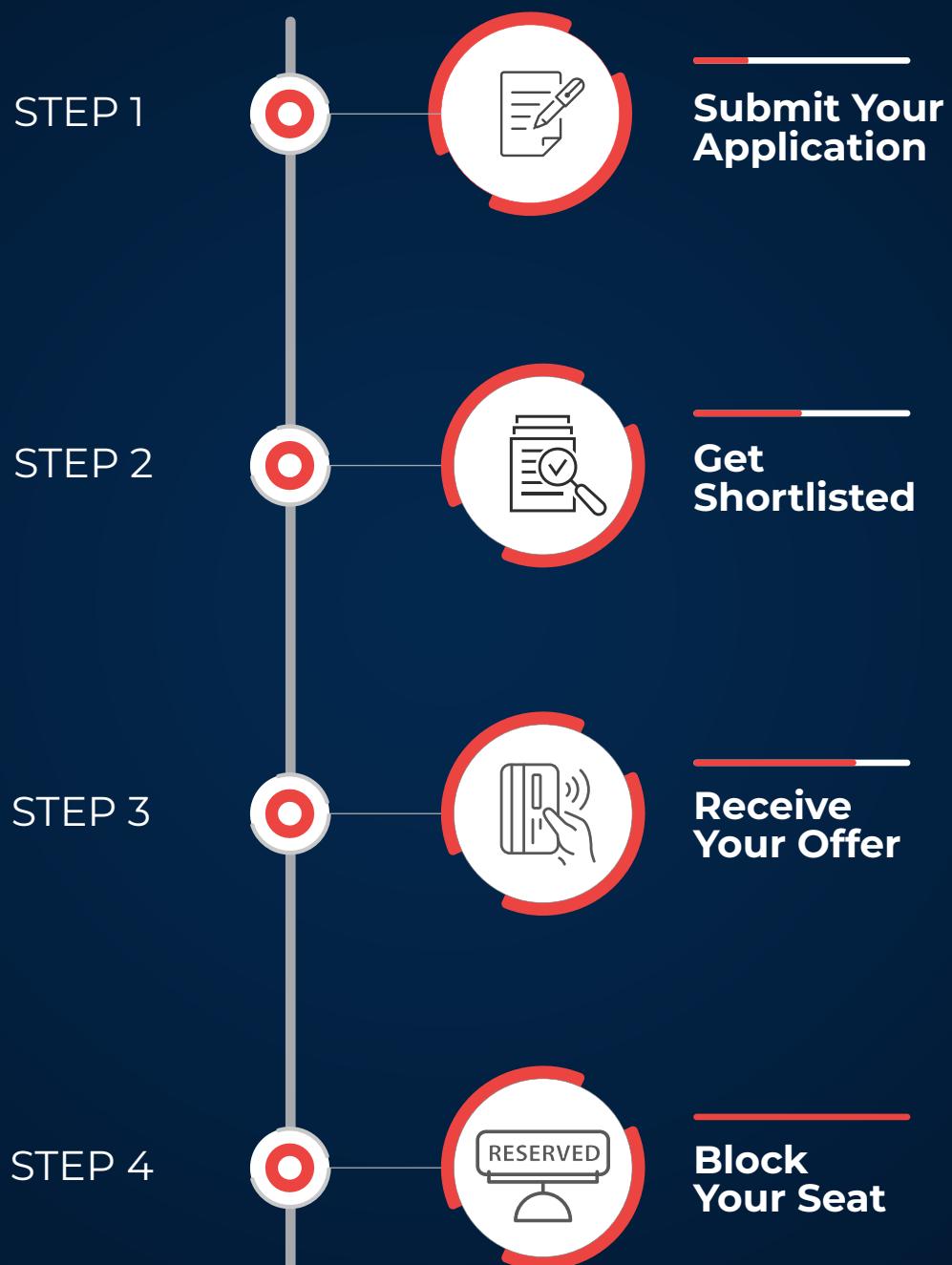
Let's combine Gen AI innovation with solid data pipelines scalable AI products. This pairing ensures that innovative GenAI projects are built on a solid foundation, allowing them to be scalable and successful in the long run.



Option to articulate to a Master's degree  
from Liverpool John Moores University after  
successful completion of the program

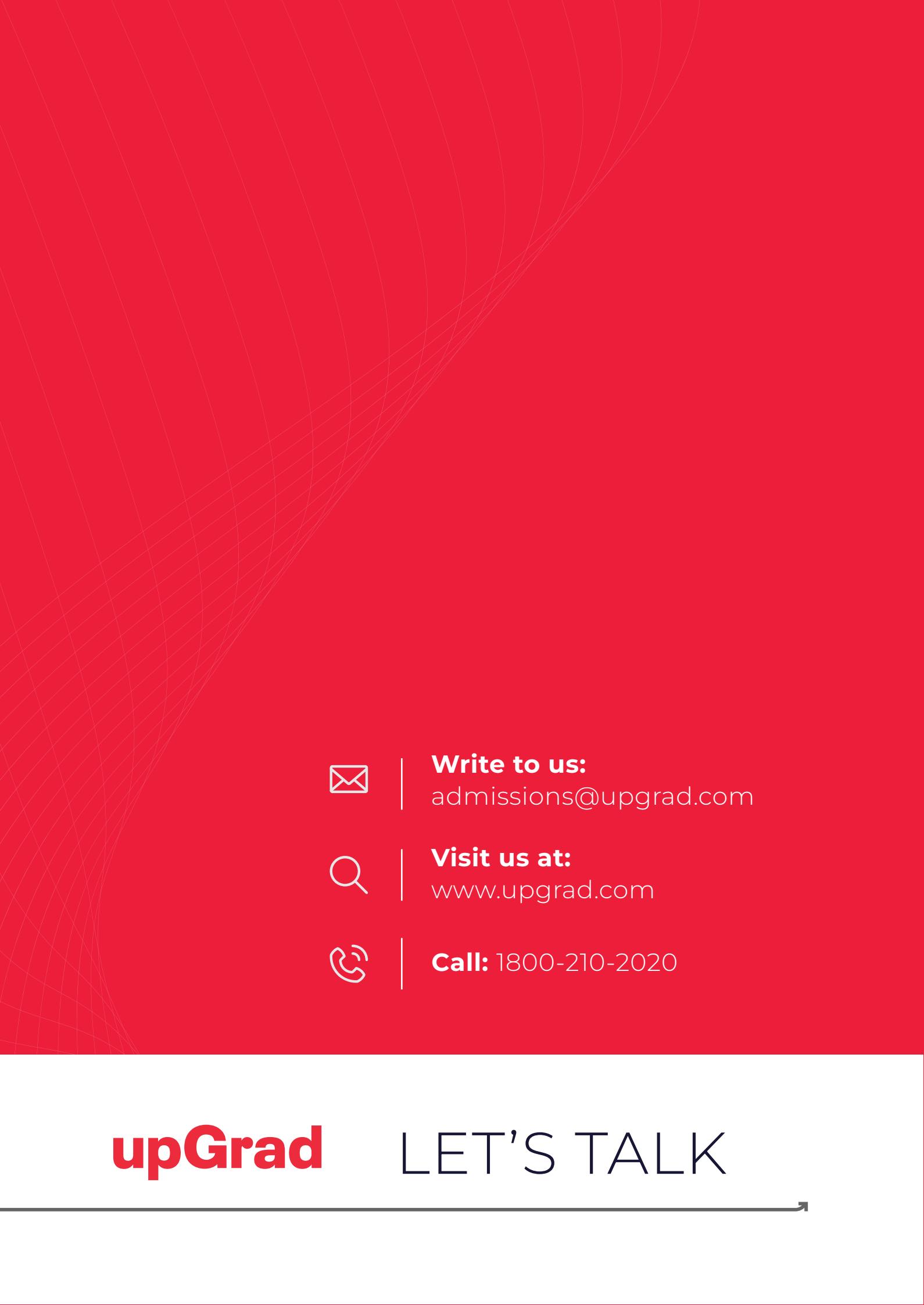


Enrol in 4 small steps, Then take a giant leap.



### **Eligibility Criteria**

Bachelor's or Master's Degree or its equivalent in any discipline with minimum 50% aggregate mark or equivalent CGPA.

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-  **Write to us:** admissions@upgrad.com
  -  **Visit us at:** www.upgrad.com
  -  **Call:** 1800-210-2020

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LET'S TALK