upGrad

Executive Post Graduate Certificate in

Data Science & AI

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About **upGrad and IIITB**

upGrad has delivered over 20 million hours of learning, delivering programs by collaborating with universities across the world including, Duke CE, IIIT Bangalore and Deakin Business School, among others.

Online education is a fundamental disruption that will have a far-reaching impact. **upGrad** was founded, taking this into consideration. upGrad is an online education platform to help individuals develop their professional potential in the most engaging learning environment.

Since its inception, upGrad has delivered over 20 million hours of learning, delivering programs by collaborating with universities across the world, including Duke CE, IIIT Bangalore and Deakin Business School among others.

upGrad is focused on helping working professionals in their bid to learn, grow and move up in their careers through a wide range of programs designed to improve their expertise.

IIITB is a renowned university offering programs specialising in data science, machine learning and artificial intelligence. The IIITB faculty includes an average of 15+ years of experience.

The faculty covers the conceptual depths of topics such as Data Science, Machine Learning and Artificial Intelligence, and Big Data Analytics. These will be complemented by industry-relevant case studies from major industry verticals by industry leaders with 8+ years of experience from upGrad's industry network.

Furthermore, our strong placement network, industry mentorship and the credibility of an Executive Post Graduate Certificate Program in Data Science & AI will provide you with just the right push to accelerate your career in Data Science!

Why
upGrad?

INR 1.23 Cr Highest Salary

300+ Hiring Partners

433% Highest Hike

700+ Industry Experts

50% Avg Salary Hike

2+ Million Learners

boarding gates 1-15

boarding gates 16-54

Gate **16**

Gate **17**

Airline _SU 123456_

Airline _SU 123456_

Program
Highlights

Certification from IIITB

Get certified by IIITB on successful completion of the Executive Post Graduate Certificate Program in Data Science & AI.

For The Industry, By The Industry

Learn from 7+ case studies and industry experts to mentor you throughout the program.

Dedicated Career Assistance

Receive 360 degree career support from mock interviews with hiring managers, resume building, career fairs, industry mentors and much more.

Personalised Mentorship

Get unparalleled personalised mentorship and doubt resolution from our panel of industry experts.

Blended Learning

Learn with the ease and flexibility of recorded sessions as well as live sessions and Personalised Industry sessions - designed to ensure a wholesome learning experience.

Articulate to a an Executive PG Certificate Programme in Data Science

Upon successful completion of the Advanced Certificate Programme in Data Science, get an opportunity to upgrade to the Executive Post Graduate Certificate Program in Data Science & AI from IIIT Bangalore with an option to choose from 5 specializations.

New
Additions

30-Hour Programming Bootcamp for Non-Tech Learners

· Non-tech background? No need to fear of Programming anymore.

· A 30-hour Python Programming boot-camp focusing on developing Basic + Intermediate Python Programming Concepts to assist non-tech learners.

· A blended learning experi-ence delivered via interactive live sessions and assessments.

Career Essential Soft-skills Program

· Excel at your personal & professional life with upGrad's soft skills program.

· Study three fundamental skills - Inter-view & Job Search, Corporate & Business Communication and Problem Solving.

· Get access to 40+ learning hours of soft skills content delivered by the best faculty & Industry experts.

Faculty and Industry
Experts

Hindol Basu
CEO
Actify Data Labs

An alumnus of IIT and IIM with over 13 years of experience in analytics with industry leaders such as Citigroup and Tata Industries.

Chandrashekar Ramanathan
Dean Academics,
IIITB

Prof. Chandrashekar has a PhD from Mississippi State University and experience of over 10 years in several multinational organisations.

S. Anand
CEO
Gramener

An alumnus of IIT Madras, IIM Bangalore and LBS London, Anand is among the top 10 data scientists in India with 20 years of experience.

Tricha Anjali
Ex-Associate Dean,
IIITB

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

Behzad Ahmadi
Data Scientist
Walmart Labs

An M. Tech graduate and PhD from Jersey Institute of Technology, Behzad possesses tremendous years of experience in Data Science and ML

Dr. Debabrata Das
Director,
IIITB

Dr. Debabrata Das is Director of IIITB. He has received his PhD from IIT-KGP. His main areas of research are IoT and Wireless Access Network

Prof. G. Srinivasaraghavan
Professor,
IIITB

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

Mirza Rahim Baig
Lead Analyst,
Zalando

Advanced analytics professional with 8+ years of experience as a consultant in the e-commerce and healthcare domains.

Sajan Kedia
Ex- Data Science Lead,
Myntra

Sajan graduated from IIT, BHU and has tons of experience in Data Science, Big Data, Spark, Machine Learning and Natural Language Processing

Rajesh Sabapathy
Sr Director, Data Science,
UHG Group

Rajesh has 10+ years of experience leading Data Science teams in various domains solving complex problems using Deep Learning & ML technique.

upGrad Learning
Experience

Job Opportunities

upGrad Opportunities

- upGrad Elevate: Virtual hiring drive giving you the opportunity to interview with upGrad's 300+ hiring partners
Job Opportunities Portal: Gain exclusive access to upGrad's Job Opportunities portal which has 100+ openings from upGrad's hiring partners at any given time
- Be the first to know vacancies to gain an edge in the application process
- Connect with companies that are the best match for you

Learning Support

Industry Expert Guidance

- Interactive Live Sessions with leading industry experts covering curriculum + advanced topics
- Personalised Industry Session in small groups (of 10-12) with industry experts to augment program curriculum with customized industry based learning

Student Support

- Student Support is available 7 days a week, 24*7
- You can write to us via studentsupport@upgrad. com or for urgent queries, use the "Talk to Us" option on the Learn platform.

Practical Learning and Networking

Networking & Learning Experience

- Live Discussion forum for peer to peer doubt resolution monitored by technical experts
- Peer to peer networking opportunities with a alumni pool of 10000+
- Lab walkthroughs of industry-driven projects
- Weekly real-time doubt clearing sessions

Career Assistance

Career Mentorship Sessions (1:1)

- Get mentored by an experienced industry expert and receive personalised feedback to achieve your desired outcome

High Performance Coaching (1:1)

- Get a dedicated career coach after the program to help track your career goals, coach you on your profile, and support you during your career transition journey
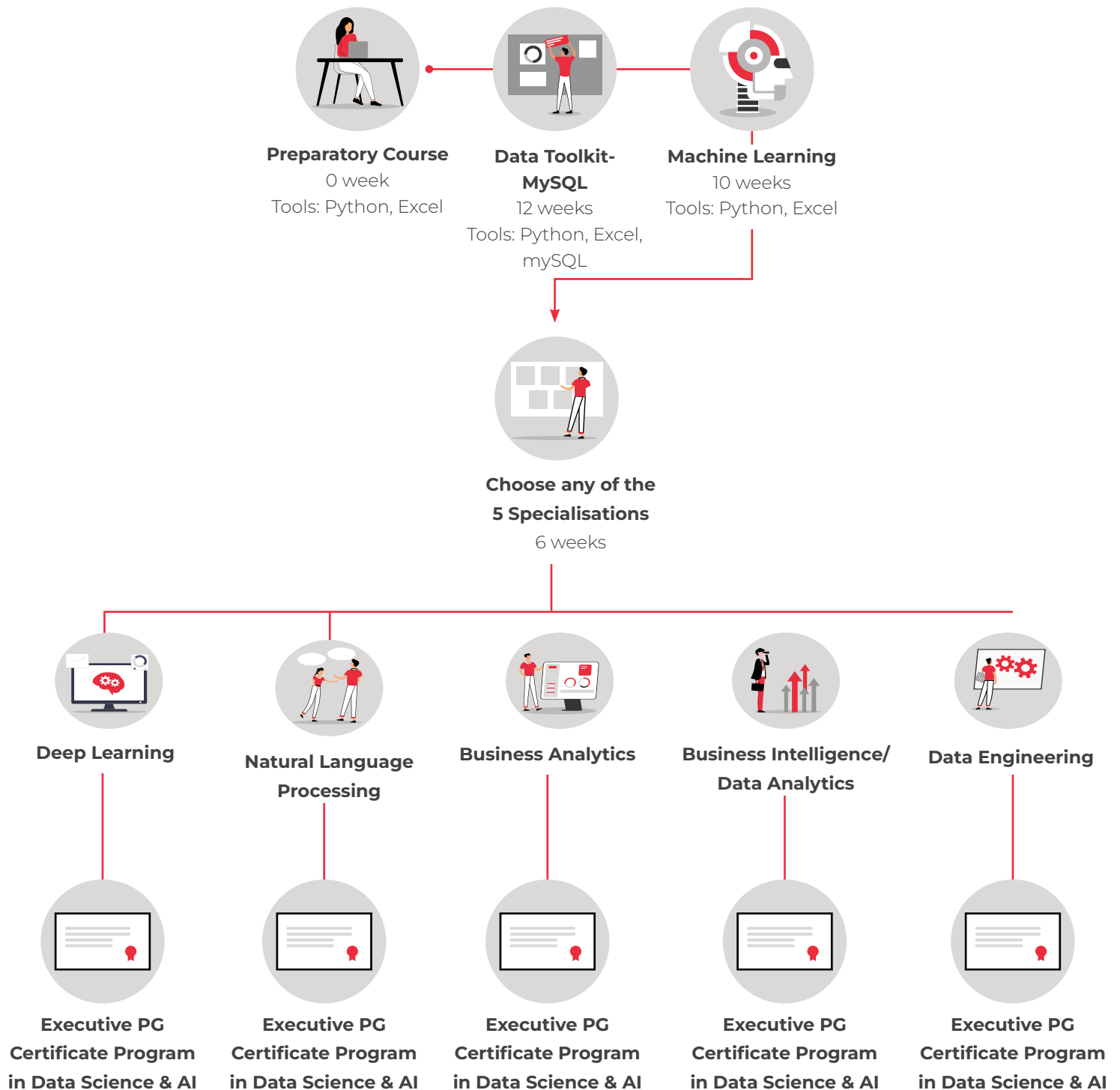
AI Powered Profile Builder

- Obtain specific, AI powered inputs on your resume and Linkedin structure along with content on real time basis

Interview Preparation

- Get access to Industry Experts and discuss any queries before your interview
Career bootcamps to refresh your technical concepts and improve your soft skills

Learning
Path

Preparatory Course
0 week
Tools: Python, Excel

Data Toolkit-MySQL
12 weeks
Tools: Python, Excel, mySQL

Machine Learning
10 weeks
Tools: Python, Excel

Choose any of the 5 Specialisations
6 weeks

Deep Learning

Natural Language Processing

Business Analytics

Business Intelligence/ Data Analytics

Data Engineering

Executive PG Certificate Program in Data Science & AI

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Executive PG Certificate Program in Data Science & AI

Executive PG Certificate Program in Data Science & AI

Get an option to upgrade to Executive PG Certificate Program in Data Science & AI and choose from 5 specialisations

Program
Curriculum

PRE-PROGRAMME PREPARATORY CONTENT

DATA ANALYSIS IN EXCEL

1. **INTRODUCTION TO EXCEL**

2. **DATA ANALYSIS IN EXCEL - I: FUNCTIONS, FORMULAE, AND CHARTS**

3. **DATA ANALYSIS IN EXCEL - II: PIVOTS AND LOOKUPS**

Taught by one of the most renowned data scientists in the country (S.Anand, CEO, Gramener), this module takes you from a beginner-level Excel user to an almost professional user.

ANALYTICS PROBLEM SOLVING

1. **THE CRISP-DM FRAMEWORK - BUSINESS AND DATA UNDERSTANDING**

2. **CRISP-DM FRAMEWORK - DATA PREPARATION, MODELLING, EVALUATION AND DEPLOYMENT**

This module covers concepts of the CRISP-DM framework for business problem-solving.

COURSE 1: DATA TOOLKIT

INTRODUCTION TO PYTHON

1. **UNDERSTANDING THE UPGRAD CODING CONSOLE**

2. **BASICS OF PYTHON**

3. **DATA STRUCTURES IN PYTHON**

4. **CONTROL STRUCTURE AND FUNCTIONS IN PYTHON**

5. **OOP IN PYTHON**

Build a foundation for the most in-demand programming language of the 21st century.

2 WEEKS

The Curriculum is subject to change as per the inputs from university or industry experts

PROGRAMMING IN PYTHON

1.	**LOGIC AND SYNTAX BUILDING**	Learn how to approach and solve logical problems using programming.	**2 WEEKS**
2.	**DATA STRUCTURES: LISTS, STRINGS, DICTIONARIES, AND STACKS**		
3.	**TIME COMPLEXITY**		
4.	**SEARCHING AND SORTING**		
5.	**TWO POINTERS**		
6.	**RECURSION**		

PYTHON FOR DATA SCIENCE

1.	**INTRODUCTION TO NUMPY**	Learn how to manipulate datasets in Python using Pandas which is the most powerful library for data preparation and analysis.	**1 WEEK**
2.	**INTRODUCTION TO MATPLOTLIB**		
3.	**INTRODUCTION TO PANDAS**		
4.	**GETTING AND CLEANING DATA**		

DATA VISUALIZATION IN PYTHON

1.	**INTRODUCTION TO DATA VISUALIZATION**	Humans are visual learners, and hence no task related to data is complete without visualisation. Learn to plot and interpret various graphs in Python and observe how they make data analysis and drawing insights easier.	**1 WEEK**
2.	**DATA VISUALISATION USING SEABORN**		

EXPLORATORY DATA ANALYSIS

1.	**DATA SOURCING**	Learn how to find and analyse the patterns in the data to draw actionable insights.	**1 WEEK**
2.	**DATA CLEANING**		
3.	**UNIVARIATE ANALYSIS**		
4.	**BIVARIATE ANALYSIS AND MULTIVARIATE ANALYSIS**		

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CREDIT EDA CASE STUDY

1. **PROBLEM STATEMENT**
2. **EVALUATION RUBRIC**
3. **FINAL SUBMISSION**
4. **SOLUTION**

Solve a real industry problem through the concepts learnt in exploratory data analysis.

1 WEEK

INFERENTIAL STATISTICS

1. **BASICS OF PROBABILITY**
2. **DISCRETE PROBABILITY DISTRIBUTIONS**
3. **CONTINUOUS PROBABILITY DISTRIBUTIONS**
4. **CENTRAL LIMIT THEOREM**

Build a strong statistical foundation and learn how to 'infer' insights from a huge population using a small sample.

1 WEEK

HYPOTHESIS TESTING

1. **CONCEPTS OF HYPOTHESIS TESTING - I: NULL AND ALTERNATE HYPOTHESIS, MAKING A DECISION, AND CRITICAL VALUE METHOD**
2. **CONCEPTS OF HYPOTHESIS TESTING - II: P-VALUE METHOD AND TYPES OF ERRORS**
3. **INDUSTRY DEMONSTRATION OF HYPOTHESIS TESTING: TWO-SAMPLE MEAN AND PROPORTION TEST, A/B TESTING**

Understand how to formulate and validate hypotheses for a population to solve real-life business problems.

1 WEEK

DATA ANALYSIS USING SQL

1. **DATABASE DESIGN**
2. **DATABASE CREATION IN MYSQL WORKBENCH**
3. **QUERYING IN MYSQL**
4. **JOINS AND SET OPERATIONS**

Data in companies is definitely not stored in excel sheets. Learn the fundamentals of database and extract information from RDBMS using the structured query language.

1 WEEK

The Curriculum is subject to change as per the inputs from university or industry

ADVANCED SQL & BEST PRACTICES

1. **WINDOW FUNCTIONS**
2. **CASE STATEMENTS, STORED ROUTINES AND CURSORS**
3. **QUERY OPTIMISATION AND BEST PRACTICES**
4. **PROBLEM-SOLVING USING SQL**

Apply advanced SQL concepts like windowing and procedures to derive insights from data and answer pertinent business questions.

1 WEEK

SQL ASSIGNMENT: RSVP MOVIES

1. **PROBLEM STATEMENT**
2. **EVALUATION RUBRIC**
3. **FINAL SUBMISSION**
4. **SOLUTION**

In this assignment, you will work on a movies dataset using SQL to extract exciting insights.

1 WEEK

COURSE 2 - MACHINE LEARNING I

LINEAR REGRESSION

1. **SIMPLE LINEAR REGRESSION**
2. **SIMPLE LINEAR REGRESSION IN PYTHON**
3. **MULTIPLE LINEAR REGRESSION**
4. **MULTIPLE LINEAR REGRESSION IN PYTHON**
5. **INDUSTRY RELEVANCE OF LINEAR REGRESSION**

Venture into the machine learning community by learning how one variable can be predicted using several other variables through a housing dataset where you will

2 WEEKS

1. **PROBLEM STATEMENT**
2. **EVALUATION RUBRIC**
3. **FINAL SUBMISSION**
4. **SOLUTION**

Build a model to understand the factors on which the demand for bike-sharing systems vary on and help a company optimise its revenue.

1 WEEK

LOGISTIC REGRESSION

1. **UNIVARIATE LOGISTIC REGRESSION**

2. **MULTIVARIATE LOGISTIC REGRESSION: MODEL BUILDING AND EVALUATION**

3. **LOGISTIC REGRESSION: INDUSTRY APPLICATIONS**

Learn your first binary classification technique by determining which telecom operator customersr are likely to churn versus those who are not to help the business retain customers.

2 WEEKS

CLASSIFICATION USING DECISION TREES

1. **INTRODUCTION TO DECISION TREES**

2. **ALGORITHMS FOR DECISION TREES CONSTRUCTION**

3. **HYPERPARAMETER TUNING IN DECISION TREES**

Learn how the human decision-making process can be replicated using a decision tree and tune it to suit your needs.

1 WEEK

UNSUPERVISED LEARNING: CLUSTERING

1. **INTRODUCTION TO CLUSTERING**

2. **K-MEANS CLUSTERING**

3. **HIERARCHICAL CLUSTERING**

4. **OTHER FORMS OF CLUSTERING: K-MODE, K-PROTOTYPE, DB SCAN**

Learn how to group elements into different clusters when you don't have any pre- defined labels to segregate them through K-means clustering, hierarchical clustering, and more.

1 WEEK

BASICS OF NLP AND TEXT MINING

1. **REGEX AND INTRODUCTION TO NLP**

2. **BASIC LEXICAL PROCESSING**

3. **ADVANCED LEXICAL PROCESSING**

Do you get annoyed by the constant spam in your mailbox? Wouldn't it be nice if we had a program to check your spelling? In this module learn how to build a spell checker & spam detector using techniques like phonetic hashing, bag-of-words, TF-IDF, etc.

1 WEEK

BUSINESS PROBLEM SOLVING

1. **INTRODUCTION TO BUSINESS PROBLEM SOLVING**	Learn how to approach open-ended, real- world problems using data as a lever to draw actionable insights.	**1 WEEK**
2. **BUSINESS PROBLEM SOLVING: CASE STUDY DEMONSTRATIONS**		

CASE STUDY: LEAD SCORING

1. **PROBLEM STATEMENT**	Help the Sales team of your company iden-tify which leads are worth pursuing through this classification case study.	**1 WEEK**
2. **EVALUATION RUBRIC**		
3. **FINAL SUBMISSION**		
4. **SOLUTION**		

SPECIALISATION - DEEP LEARNING

COURSE 3 - MACHINE LEARNING II

BAGGING & RANDOM FOREST

1. **POPULAR ENSEMBLES**	Learn how powerful ensemble algorithms can improve your classification models by building random forests from decision trees.	**1 WEEK**
2. **INTRODUCTION TO RANDOM FORESTS**		
3. **FEATURE IMPORTANCE IN RANDOM FORESTS**		
4. **RANDOM FORESTS IN PYTHON**		

BOOSTING

1. **INTRODUCTION TO BOOSTING AND ADABOOST**	Learn about ensemble modelling through bagging and boosting, and understand how weak algorithms can be transformed into stronger ones.	**1 WEEK**
2. **GRADIENT BOOSTING**		

MODEL SELECTION & GENERAL ML TECHNIQUES

1. **PRINCIPLES OF MODEL SELECTION** 2. **MODEL EVALUATION** 3. **MODEL SELECTION: BEST PRACTICES**	Learn the pros and cons of simple and complex models and the different methods for quantifying model complexity, along with general machine learning techniques like feature engineering, model evaluation, and many more.	**1 WEEK**

PRINCIPAL COMPONENT ANALYSIS

1. **PRINCIPAL COMPONENT ANALYSIS AND SINGULAR VALUE DECOMPOSITION** 2. **PRINCIPAL COMPONENT ANALYSIS IN PYTHON**	Understand important concepts related to dimensionality reduction, the basic idea and the learning algorithm of PCA, and its practical applications in supervised and unsupervised problems.	**1 WEEK**

ADVANCED REGRESSION

1. **GENERALISED LINEAR REGRESSION** 2. **REGULARISED REGRESSION**	In this module, take a more advanced look at regression models and learn the concepts related to regularisation.	**1 WEEK**

ADVANCED ML CASE STUDY

1. **PROBLEM STATEMENT** 2. **EVALUATION RUBRIC** 3. **FINAL SUBMISSION** 4. **SOLUTION**	Build a regularized regression model to understand the most important variables to predict house prices in Australia.	**1 WEEK**

OPTIONAL

1. **INTRODUCTION TO NEURAL NETWORKS AND ANN**
2. **BACKPROPOGATION IN NEURAL NETWORKS**
3. **HYPERPARAMETER TUNING IN NEURAL NETWORKS**

SPECIALISATION - NATURAL LANGUAGE PROCESSING

COURSE 3 - MACHINE LEARNING II

BAGGING & RANDOM FOREST

1. **POPULAR ENSEMBLES**
2. **INTRODUCTION TO RANDOM FORESTS**
3. **FEATURE IMPORTANCE IN RANDOM FORESTS**
4. **RANDOM FORESTS IN PYTHON**

Learn how powerful ensemble algorithms can improve your classification models by building random forests from decision trees.

1 WEEK

BOOSTING

1. **INTRODUCTION TO BOOSTING AND ADABOOST**
2. **GRADIENT BOOSTING**

Learn about ensemble modelling through bagging and boosting, and understand how weak algorithms can be transformed into stronger ones.

1 WEEK

MODEL SELECTION & GENERAL ML TECHNIQUES

1. **PRINCIPLES OF MODEL SELECTION**
2. **MODEL EVALUATION**
3. **MODEL SELECTION: BEST PRACTICES**

Learn the pros and cons of simple and complex models and the different methods for quantifying model complexity, along with general machine learning techniques like feature engineering, model evaluation, and many more.

1 WEEK

PRINCIPAL COMPONENT ANALYSIS

1. **PRINCIPAL COMPONENT ANALYSIS AND SINGULAR VALUE DECOMPOSITION**
2. **PRINCIPAL COMPONENT ANALYSIS IN PYTHON**

Understand important concepts related to dimensionality reduction, the basic idea and the learning algorithm of PCA, and its practical applications in supervised and unsupervised problems.

1 WEEK

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ADVANCED REGRESSION

1. **GENERALISED LINEAR REGRESSION**
2. **REGULARISED REGRESSION**

In this module, take a more advanced look at regression models and learn the concepts related to regularisation.

1 WEEK

ADVANCED ML CASE STUDY

1. **PROBLEM STATEMENT**
2. **EVALUATION RUBRIC**
3. **FINAL SUBMISSION**
4. **SOLUTION**

Build a regularized regression model to understand the most important variables to predict house prices in Australia.

1 WEEK

OPTIONAL

1. **SYNTACTIC PROCESSING - I**
2. **SYNTACTIC PROCESSING - II**

SPECIALISATION - BUSINESS ANALYTICS

COURSE 3 - ADVANCED MACHINE LEARNING

BAGGING & RANDOM FOREST

1. **POPULAR ENSEMBLES**
2. **INTRODUCTION TO RANDOM FORESTS**
3. **FEATURE IMPORTANCE IN RANDOM FORESTS**
4. **RANDOM FORESTS IN PYTHON**

Learn how powerful ensemble algorithms can improve your classification models by building random forests from decision trees.

1 WEEK

MODEL SELECTION & GENERAL ML TECHNIQUES

1. **PRINCIPLES OF MODEL SELECTION**
2. **MODEL BUILDING AND EVALUATION**
3. **FEATURE ENGINEERING**
4. **CLASS IMBALANCE**

Learn the pros and cons of simple and complex models and the different methods for quantifying model complexity, along with general machine learning techniques like feature engineering, model evaluation, and many more.

2 WEEKS

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TIME SERIES FORECASTING

1. **INTRODUCTION TO TIME SERIES AND ITS COMPONENTS**	In this module, you will learn how to analyse and forecast a series that varies with time.	**2 WEEKS**
2. **SMOOTHING TECHNIQUES**		
3. **INTRODUCTION TO AR MODELS**		
4. **BUILDING AR MODELS**		

MODEL SELCTION CASE STUDY

1. **PROBLEM STATEMENT**	Apply your business acumen to the newly learnt machine learning techniques, and select the most appropriate model for a provided business scenario.	**1 WEEK**
2. **EVALUATION RUBRIC**		
3. **FINAL SUBMISSION**		
4. **SOLUTION**		

SPECIALISATION - BUSINESS INTELLIGENCE/DATA ANALYTICS

COURSE 3: ADVANCED DBS AND BIG DATA ANALYTICS

DATA MODELLING

1. **DATABASE DESIGN RECAP**	In this module, you will learn and use data modelling on a dataset to solve a business problem.	**1 WEEK**
2. **BUILDING BLOCKS OF DATA MODELLING**		
3. **PROBLEM SOLVING USING DATA MODELLING**		
4. **DATA MODELLING: OPTIONAL ASSIGNMENT**		

ADVANCED SQL AND BEST PRACTICES

1. **WINDOW FUNCTIONS**	Apply advanced SQL concepts like windowing and procedures to derive insights from data and answer pertinent business questions	**1 WEEK**
2. **CASE STATEMENTS, STORED ROUTINES, AND CURSORS**		
3. **QUERY OPTIMISATION AND BEST PRACTICES**		
4. **PROBLEM SOLVING USING SQL**		

INTRODUCTION TO BIG DATA AND CLOUD

1. **BIG DATA AND CLOUD COMPUTING**	Understand the basics of big data and cloud and learn to work with an EMR cluster on a cloud-based service.	**1 WEEK**
2. **AMAZON WEB SERVICES**		
3. **BIG DATA STORAGE AND PROCESSING - HADOOP**		
4. **EMR CLUSTER IN AWS**		

ANALYTICS USING SPARK

1. **EXPLORATORY DATA ANALYSIS WITH PYSPARK**	Use PySpark to do EDA and Predictive Analysis using Spark's ML library.	**2 WEEKS**
2. **PREDICTIVE ANALYSIS WITH SPARK MLLIB**		

BIG DATA CASE STUDY

1. **PROBLEM STATEMENT**	Use your analytics skills to work on a large dataset in cloud to solve an industry problem.	**1 WEEK**
2. **EVALUATION RUBRIC**		
3. **FINAL SUBMISSION**		
4. **SOLUTION**		

SPECIALISATION - DATA ENGINEERING

COURSE 3 - DATA ENGINEERING - I

DATA MANAGEMENT AND RELATIONAL DATABASE MODELLING

1. **ENTERPRISE DATA MANAGEMENT** 2. **RELATIONAL DATABASE MODELLING** 3. **NORMAL FORMS AND ER DIAGRAMS**	Understand the concepts of Data Management and learn to model data from a Relational Database.	**1 WEEK**

INTRODUCTION TO BIG DATA (OPTIONAL)

1. **4Vs OF BIG DATA** 2. **BIG DATA: INDUSTRY CASE STUDIES**	This module you will learn what big data is, its various characteristics, and its determining factors. You will also get an idea of the various sources of big data and the wide range of big data applications in different industries such as retail, healthcare, and finance.	**0 WEEK**

INTRODUCTION TO CLOUD AND AWS SETUP

1. **INTRODUCTION TO CLOUD** 2. **AWS SETUP**	Understand what is cloud and setup your AWS account which will be required during the program.	**1 WEEK**

INTRODUCTION TO HADOOP AND MAPREDUCE PROGRAMMING

1. **CONCEPTS RETAILED TO DISTRIBUTED COMPUTING** 2. **HADOOP DISTRIBUTED FILE SYSTEM** 3. **MAPREDUCE PROGRAMMING IN PYTHON**	Understand the world of distributed data processing and storage with Hadoop. Learn to write MapReduce jobs in Python.	**1 WEEK**

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ASSIGNMENT (OPTIONAL)

1.	**INTRODUCTION, PROBLEM STATEMENT AND GRADING RUBRICS**	Solve an assignment to brush up on the skills learnt so far.

0 WEEK

NOSQL DATABASES AND APACHE HBASE
NOSQL DATABASES AND MONGODB (OPTIONAL)

1. **CONCEPTS OF NOSQL DATABASES**

2. **INTRODUCTION TO APACHE HBASE**

3. **HBASE PYTHON API**

4. **COMPARISON OF NOSQL DATABASES**

Learn the concepts of NoSQL databases. Understand the working of Apache HBase.

1 WEEK

DATA WAREHOUSING (OPTIONAL)

1. **INTRODUCTION TO DATA WAREHOUSE AND DATA LAKES**

2. **DESIGNING DATA WAREHOUSING FOR AN ETL DATA PIPELINE**

3. **DESIGNING DATA LAKE FOR AN ETL DATA PIPELINE**

Understand the intricacies behind designing a data warehouse and a data lake for use case(s).

0 WEEK

DATA INGESTION WITH APACHE SQOOP AND APACHE FLUME

1. **INTRODUCTION TO DATA INGESTION**

2. **STRUCTURED DATA INGESTION WITH SQOOP**

3. **UNSTRUCTURED DATA INGESTION WITH FLUME**

Get familiar with the challenges involved in data ingestion. Use Sqoop and Flume to ingest structured and unstructured data into Hadoop.

1 WEEK

MAPREDUCE PROGRAMMING ASSIGNMENT

1. **PROBLEM STATEMENT AND SAMPLE DATASET**

   Practise MapReduce Programming on a Big Dataset.   **1 WEEK**

2. **SOLUTION**

Industry
Projects
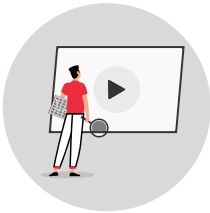
IMDb Movie Analysis
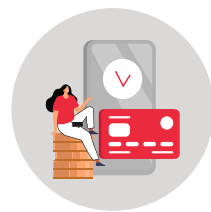
Uber Supply-Demand

Lead Scoring

Fraud Detection
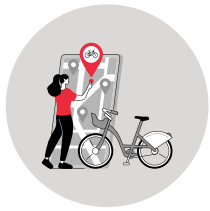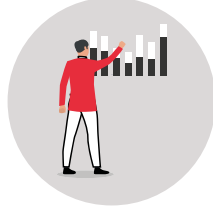
Creditworthiness of Customers

Speech Recognition

Credit EDA Assignment
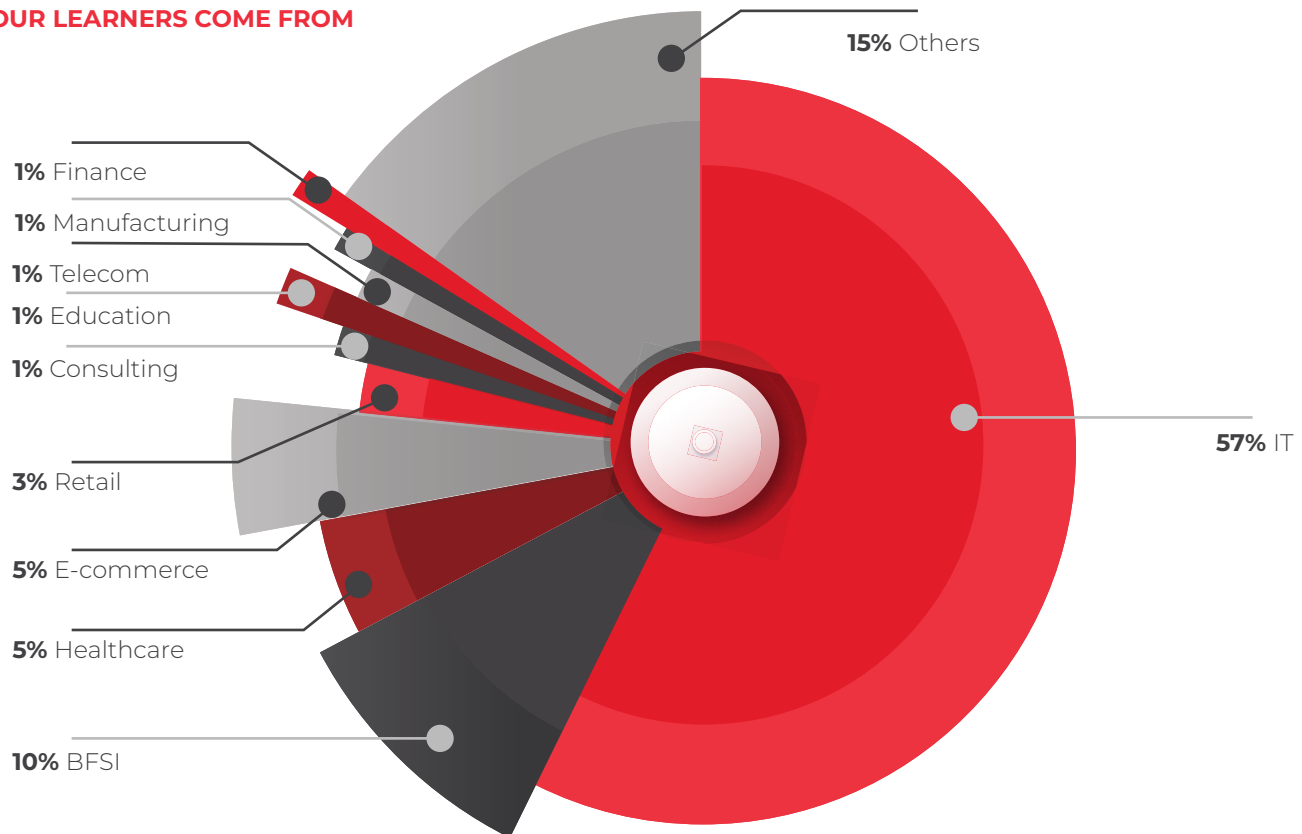
RSVP CaseStudy

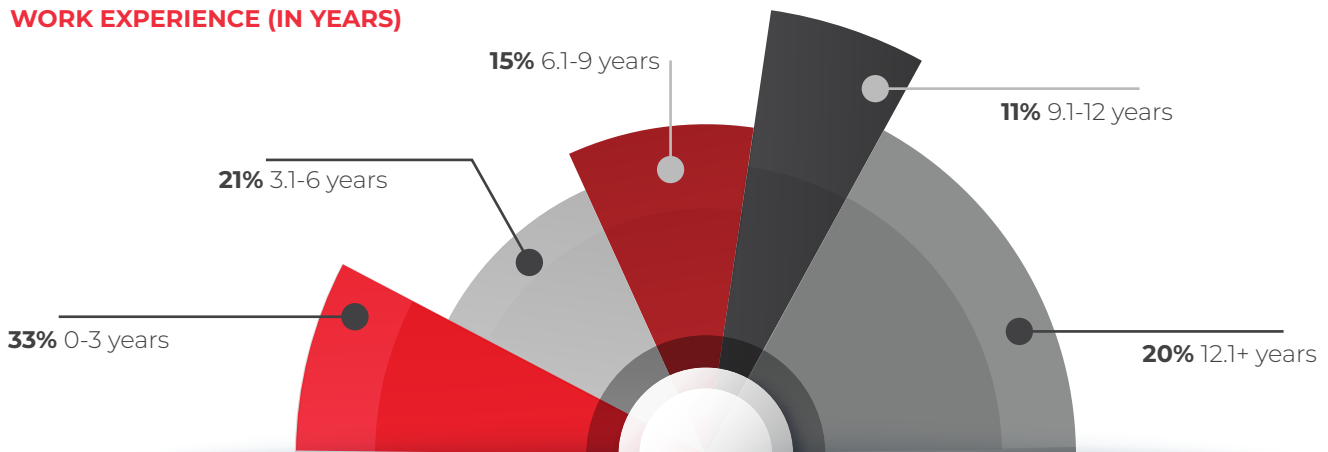**Bike Sharing Assignment**

Lead Scoring Case Study
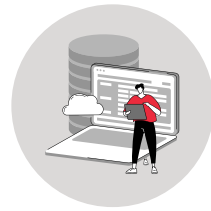
Big Data Case Study

Meet the
Class

**INDUSTRIES
OUR LEARNERS COME FROM**

15% Others

1% Finance

1% Manufacturing

1% Telecom

1% Education

1% Consulting

3% Retail

5% E-commerce

5% Healthcare

10% BFSI

57% IT

WORK EXPERIENCE (IN YEARS)

15% 6.1-9 years

11% 9.1-12 years

21% 3.1-6 years

33% 0-3 years

20% 12.1+ years

A few of the companies our students are from: Accenture, Amazon, Cognizant, Deloitte, Infosys, Microsoft, Wipro, EY, CitiBank, Cisco, Thomson Reuters

Career
Support

Jobs on Career Centre

Career Centre offers upGrad jobs across
experience levels and CTC ranges.
· Easy apply feature for upGrad hiring partner
  vacancies.
· Create a resume at profile builder with
  one click to apply for various jobs.

upGrad Elevate

· Recruitment Drive to connect you with the
  best talent admirers in the industry
· Get access to a wide range of opportunities
  and find the perfect job
· Apply your learnings to real industry problems

Interview Preparation

Pre-recorded content on topics such as:
· Profile building, communications etc.
· Problem-solving approach
· Approaching guesstimates
· Domain-specific interview question bank
  and much more

Profile Builder (AI-Powered)

An easy-to-use Resume, LinkedIn and Cover
letter preparation tool.
· Resume Score: AI-Driven Resume Score
· Real-time recommendations to improve
· Match your resume to the JD and check
  fitment
· LinkedIn Profile Review
· Cover Letter creation

Just-In-Time Interview Prep (JIT)

For upcoming job interviews JITs are conducted
within 48 hours for eligible programs.
· Tailored to the job role and target domain
· Real-time feedback and tips for improvement

High-Performance Coaching

Dedicated coaches working with you to identify
best-suited career opportunities
· Help you define your value proposition
· Lay out a career path and help you adhere to
  your timelines and goals
· Help you with interview preparations, finding
  jobs in the market, salary negotiations and
  other preparation as required

Personalised Industry Session

90-minute sessions over the weekend by leading
industry experts
· Session categories: Career, Technical and
  Communications
· Doubt resolution
· Develop proof of concepts and apply theoretical
  concepts in the real world
· Assess skill levels
· Peer Networking
· Classroom element
· Business communication sessions and much
more

Career Mentorship Sessions

Get personalised career advice through 1-1
sessions with industry experts
· Goal setting for better employment results

Our Alumni
Work at

PROGRAM SUMMARY

2+ Million
Enrolled Learners

INR 1.23_{CR}
Highest Salary Hike

433%
Highest Salary Hike

50%
Average Salary

upGrad has a network of over 100 companies that look to recruit graduates from our programs. Some of these well-known companies include:

Career
Transitions

Abhishek Singh
MIS Executive (F&B)
Batch: March 2018

↓

Senior Data Analyst, Myntra
(Oct 2019)

Ayush Modi
Associate Consultant (IT)
Batch: March 2018

↓

Marketing Analyst,
Globalization Partners
(July 2019)

Ashish Y
Asst. Manager
(Manufacturing/Production)
Batch: Sept 2018

↓

Business Analyst, Arvind
(Sept 2019)

Jai Krishna
Fresher
Batch: Sept 2018

↓

Business Analyst, Quantzig
(Nov 2019)

Shadab Hussain
Data Scientist (IT)
Batch: Sept 2018

↓

Analyst, TheMathCompany
(July 2019)

Damodar Bandi
Global Supply Chain Analyst
(Software)
Batch: Dec 2018

↓

Sr. Business Analyst, Data
Semantics
(Aug 2019)

Shubhadip B
Technical Project Manager
(Tech Solutions)
Batch: June 2018

↓

Sr. Technical Project Manager, Aurionpro
(Oct 2019)

Deepshikha
Senior Associate (Tech)
Batch: March 2019

↓

Data Analyst, Amazon
(Nov 2019)

Rohit W
Quality Assurance Tester
(BFSI)
Batch: Jan 2019

↓

Python Automation Engineer, Credit Suisse
(July 2019)

Hariharan S
AVP (BFSI)
Batch: March 2018

↓

Project Manager, HSBC
(Aug 2019)

Mohit Mamgain
Internship (IT)
Batch: March 2018

↓

Data Analyst, Shine.com
(Aug 2019)

Aakash Dusane
Software Engineer (Software)
Batch: Dec 2018

↓

Data Scientist, Quantzig
(Aug 2019)

Sri Harsha Ravi
Principal Data
Structure Engineer (IT)
Batch: Sept 2018

↓

Senior Data Scientist, IHS
Markit
(Nov 2019)

Sujit Nalawade
Software Engineer (IT)
Batch: Sept 2018

↓

Data Analyst, Xoriant

Sudha Choudhary
Fresher
Batch: June 2018

↓

Internship - AI Engineer,
Athancare
(July 2019)

Nishant Chalasany
Project Manager (Agro)
Batch: March 2019

↓

Analytics Operations Lead,
Syngenta
(July 2019)

Ganesh Varanasi
Analyst (BFSI)
Batch: March 2018

↓

Data Scientist, Innominds
(July 2019)

Anshul Srivastava
Business Analyst (BFSI)
Batch: Sept 2018

↓

Associate Consultant, Fractal
(Aug 2019)

Anshul Kumar
Analyst (BFSI)
Batch: March 2019

↓

Data Science Intern,
Merkle Sokrati
(Aug 2019)

Sylvester Pinto
Senior Software Engineer (IT)
Batch: Dec 2018

↓

Data Associate, J.P. Morgan
(June 2019)

Ansuman Das
Risk Analyst (IT)
Batch: March 2019

↓

Specialist Data Analyst,
Novartis
(Aug 2019)

And many more...

Offline Meet-ups & Career Assistance

UPGRAD BASECAMPS

Held across all major cities in India, upGrad basecamps bring together learners, faculty and industry experts for a power-packed day of activities, career-building sessions and live group projects. Get to know your peers and faculty and hone your networking skills in an exciting environment.

CAREER FAIRS

Attend regular hiring drives in major cities across India, giving you the opportunity to interview with upGrad's 300+ hiring partners ensuring you get every opportunity you deserve.

HACKATHONS

Team up and put your learning to use with our offline Hackathons: designed to help you apply concepts and meet, network, and grow!

Hear from
Our Learners

Kunwar Alok, Experience: 15+ Years

"You may not believe it, but I have never done coding in my life. I did it during this program and was thrilled to see the outcomes of those codes. Just the way I used to get happy after solving good (tough) math problems during my school age. Thanks to upGrad for doing a great service to people like us who at the age of 43 can dream to studing with budding talents around."

Sachin Aggarwal, Experience: 18+ Years

"Learning with IIITB and upGrad has been an experience like no other. Being an online program, you have your worries about how the program and teaching methods will be. My favourite part about the learning experience has been pro- gramming through well-designed and thoughtful content shared by IIITB profes- sors and industry experts on upGrad platforms. Kudos to upGrad..."

Savita Upadhaya, Experience: 4 Years

"It has been an amazing journey with upGrad till now. Starting with their program material to live sessions to mentor support helps one to always be on track and progress efficiently with Data Science program. My sincere thanks to the entire team of upGrad and Profs of IIITB to show me the path and direction towards my dream to become a Data Analyst."

Sidharth Mahapatra, Experience: 3 Years

"The concepts of R programming and Machine Learning will be taught by Prof. Chandrasekhar Ramanathan and Prof. G Srinivasaraghavan respectively. Both of them have been listed in the top twenty prominent data science academicians list published by Analytics India Magazine. So you need not worry about the quality of teaching in this program."

Tuhin Pal, Experience: 5 Years

"I appreciate the platform upGrad how they have arranged the modules and the assignments are quality ones. You will relish your college days again as the exams felt like semester ones, where you can't talk to anybody . Modules are locked till you complete the previous one sso until you clear a semester, you can't move to the next one.

**Harkirat Dhillon, Experience: 8 Years**

"A dedicated regimen for studying the program and keep learning is the key to being successful and passing the program. This program will help build a strong foundation for a successful transition to data science. Additionally, participating in hackathons and Kaggle competitions to solve real-world problems will give you an edge and land a job if one is willing to work hard."

Shravani Shahapure, Experience: 16 Years

"For someone who passionately wants to pursue a career in the field of data science, it is worth to opt for the complete program by IIIT B and upGrad. Data science is an experimental science. We need to develop the right kind of thinking ability to approach problems. And to develop this ability, we need expert's direction. Knowing tools won't solve the problems always, we need to use them wisely and correctly. IIITB and upGrad's online program on data science gives this opportunity and develop students for their future as they provide the best professors, thought-provoking assignments and case studies ."

Sagar Tekwani, Experience: 2 Years

"A very well-structured and well-balanced program content which you won't get in other programs/nano-degrees. Being a beginner in DS, I found the structure of the Executive PG Programme from IIITB and powered by upGrad most helpful. They even teach you most of the prerequisites with prep sessions before you even start the program. Being a working professional, it was neither too difficult nor too easy to keep up with the pace of the program."
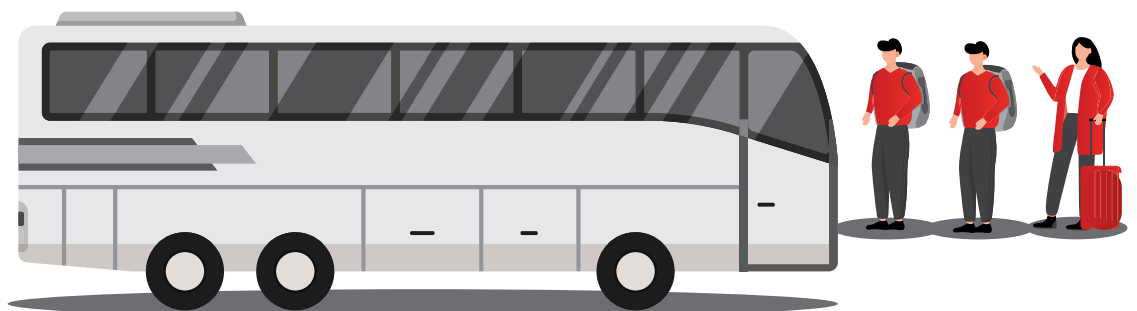
Program Details and
Admission Process

PROGRAM DURATION AND FORMAT
8-8.5 Months | Online

PROGRAM START DATES
Please refer to the website for program start dates.

PROGRAM FEE
Please visit the website for the most up-to-date program fees, as prices may be subject to change in the future.

ELIGIBILITY
Bachelor's degree in any stream.

SELECTION PROCESS

Step: 1

Fill the Application form

Fill out an application giving your basic profile details

Step: 2

Shortlisting & Block Payment to reserve seat

University will shortlist basis profile. Receive offer letter and proceed with block amount INR 15,000/-

Step: 3

Payment

Balance to be closed within 7 days or batch start date whichever is sooner

FOR FURTHER INFORMATION, CONTACT

✉ admissions@upgrad.com

📞 1800 210 2020
   We are available 24*7

Disclaimer: Program fee and payment options are subject to change. Please refer to the website for updated details or speak to our admission counsellor.

upGrad

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Worli, Mumbai - 400018.