

upGrad



International  
Institute of Information  
Technology Bangalore

# ADVANCED CERTIFICATE PROGRAMME IN

## DEVOPS



# ABOUT UPGRAD



## Ronnie Screwvala

Co-founder & Executive  
Chairman

upGrad

**upGrad** is an online education provider that enables individuals to develop their professional potential in the most engaging learning environment. Online education is a fundamental disruption to the traditional model and will be having a far-reaching impact. At upGrad, we work towards transforming this online education wave into a tsunami! We take a full stack approach, by leveraging content, technology, marketing and services, to offer quality education at scale in partnership with corporates and academia. This translates into rigorous industry relevant programs for individuals looking for a professional upgrade.

In the last 10 years, digital technology has had a profound impact on billions of lives and thousands of businesses in India and abroad. The pace of growth is only expected to increase further, as the \$150 billion Indian IT the industry is set to double its revenue in the next 10 years. This growth will be driven by new age digital products and services, which will create millions of new developer jobs.

The program will prepare our learners to excel in this rapidly evolving technology landscape, by strengthening their core concepts.

“

**Our aim is simple: We strive to create high-impact, on-campus hands-on experiences that prepare students for meaningful and productive careers”.**

# Advanced Certificate Programme in DevOps with IIITB

As an independent institution and a deemed university, IIITB collaborates with the IT industry, leading academic institutions abroad, eminent scientists and industry leaders to offer students the best possible education. Our outstanding faculty, curriculum and pedagogy ensures that our graduate programs are ranked among the best in the country. Our students have been well received by industry, and have been placed with some of the leading companies in the IT industry.

We have partnered with upGrad to offer a rigorous program with a unique and exciting of development principles and industry-led hands-on experience. Learners will get opportunities to work on industry-relevant projects and interact with industry experts through upGrad's strong industry network. The program has been designed keeping in mind that the future belongs to the professionals who can think and implement end-to-end.



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



# upGrad as a thought leader in emerging technologies

We have trained:

**10K+**

Data Scientists

**2K+**

Full Stack Developers

**5K+**

Machine Learning  
Engineers

**1.5K+**

Big Data Analysts

**1K+**

Blockchain Developers





**Dr B. Thangaraju**

Professor, IITB



**Vaishali Nankani**

DevOps Architect, Oracle



**Harish Padmanaban**

Sr Associate (AVP) - Platform | SRE | Ops,  
JPMorgan Chase & Co.



**Tayyab Khan**

Senior SRE / DevOps,  
Atlassian Full-time



**Prasanna Lohar**

Head-Technology & Innovation, DCB Bank



**Aayush Khator**

Cloud Engineer, Zynga

# Program

## Highlights



### **360 Degree Career Assistance**

Receive 360 degree career support from access to upGrad's job opportunities portal, 1:1 profile reviews, career mentorship from industry experts and much more.



### **Unparalleled Learning Experience**

Learn the concepts from experienced IITB faculty & understand the applications from Industry experts to get a blend of theoretical knowledge and practical-hands on experience.



### **For the Industry, by the Industry**

Learn and apply concepts on industry projects along with personalised industry mentorship.



### **Dedicated Student Support Team & upGrad Buddy**

To help resolve your non-academic queries and to ensure you are on track with upcoming deadlines.



### **Personalised Mentorship**

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



### **Advanced Certificate Programme from IITB**

Differentiate yourself from your peers by earning the industry recognised Advanced Certificate Programme from IIT Bangalore.

# upGrad Learning

## Experience



### Industry-relevant Curriculum

Designed and taught by best in class industry experts and IIT Bangalore's faculty.



### Blended Learning

Learn with the ease and flexibility of recorded sessions as well as live sessions, designed to ensure a wholesome learning experience



### Discussion Forums

Learn from your peers and teaching assistants, and for timely doubt resolution.



### Career Assistance

Access to upGrad's job opportunities portal, career mentorship, profile review and more.



### Re-learn the Concepts

Get program access for upto 3 years to refresh your concepts



### Hands-On Projects

Multiple case studies & assignments a mini capstone project to choose from and apply learnings to it.



# Industry

# Projects



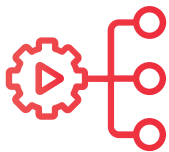
## Continuous Testing

Project revolving around the Continuous Testing aspect of DevOps



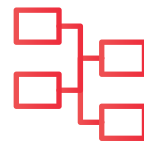
## Continuous Monitoring

Project revolving around the Continuous Monitoring aspect of DevOps



## Fully Automated Deployment

Project revolving around the Fully Automated Deployment aspect of DevOps



## CI/CD Pipeline

Project revolving around the CI/CD Pipeline aspect of DevOps



# Curriculum

## PREPARATORY COURSE

- **FUNDAMENTALS OF PROGRAMMING LANGUAGE WITH BASIC DATA STRUCTURES (JAVA)** **2 WEEKS**  
Learning the fundamentals of Java and its basic building blocks. Start with writing basic Java programs. Also explore arrays & array lists.

## C1. DEVOPS ESSENTIALS

- **FUNDAMENTALS OF LINUX & SCRIPTING** **1 WEEK**  
Learn the Common linux commands and bash scripting which are frequently used by DevOps engineers in their day to day activities
- **FUNDAMENTALS OF NETWORKING** **1 WEEK**  
Learn the concepts of public/private network, internet protocols, DNS, IP address, OSI model, VPN, tunnelling, 3 way handshake, internet protocols such as HTTP and HTTPS, Subnetting - public, private subnets, Nating(Network Address Translation), different security protocols and best practices and SSH
- **INTRODUCTION TO DEVOPS** **1 WEEK**  
Learn about the phases of Software Lifecycle. Get familiar with the concept of Minimum Viable Product (MVP) & Cross-functional Teams. Understand why DevOps evolved as a prominent culture in most of the modern day startups to achieve agility in the software development process
- **GIT AND VERSION CONTROL** **1 WEEK**  
Learn different braching Strategies- Efficient strategies/disciplines for code promotion and code reviews
- **WEB APPLICATION ON CLOUD** **1 WEEK**  
Learn the different architecture patterns of a web application and the ways to deploy it on AWS EC2 instance
- **AWS SERVICES** **1 WEEK**  
Learn deployment of a simple monolithic application on AWS VM using AWS services such as VPC, RDS, S3, CLBs/ALBs. Learn sizing strategies-How to decide the config of the instances for any particular web application?
- **COURSE ASSIGNMENT** **1 WEEK**  
Automating tasks using bash scripting

## C2. WEB APPLICATIONS AT SCALE (DELIVERED LIVE)

- **CONTAINERIZATION** 1 WEEK  
Learn the concepts of docker and the difference between docker and VM. Learn the common commands in docker and deployment of a monolithic application using Docker first on local host and later on AWS VM using AWS ECS service
- **CONTAINERIZATION AT SCALE** 2 WEEKS  
Using ECS, how to containerise applications at scale. Handling scalability issues with web applications by configuring load balancers, deciding server's geographical location, etc
- **CONTINUOUS MONITORING AND LOGGING** 2 WEEKS  
Learn about what Continuous Monitoring is, its role, impact and the tools & techniques associated with it. Explore and know about Site Reliability Engineering. Also, learn about Application Monitoring using Kibana/ELK cluster
- **INTRODUCTION TO CICD AND JENKINS** 1 WEEK  
Learn about CICD pipeline and get introduced to Jenkins- a tool to create CICD pipelines. Also, learn to setup and configure jobs on Jenkins
- **COURSE ASSIGNMENT** 1 WEEK  
Deployment of dockerised web application

Exam Week: Exam

1 WEEK

Buffer Week

1 WEEK

## C3. CICD PIPELINE, SYSTEM PROVISIONING AND DEVOPS ADVANCED CONCEPTS

- **CONTINUOUS INTEGRATION** 1 WEEK  
Learn about build process, continuous integration and automating component assembly. Explore and solve hands-on problems using tools Maven/Gradle and SonarQube
- **CONTINUOUS DEPLOYMENT** 2 WEEKS  
Learn about fully automated deployment and real-time continuous deployment on the Cloud. Practice hands-on cloud deployment on AWS. Learn how fully automated deployment works. (Exercise using shippable.com.) Real-time Continuous Deployment on the Cloud (Amazon Web Services - Exercise and Case Study)
- **SYSTEM PROVISIONING AND CONFIGURATION MANAGEMENT** 2 WEEKS  
Learn about Configuration Management via tools like Ansible and Terraform
- **ORCHESTRATION USING KUBERNETES** 2 WEEKS  
Learn the ways to orchestrate multiple docker containers using an orchestration tool like Kubernetes. Learn installation, component, architecture, creating deployment, volumes, secret and creation of CICD pipeline involving Kubernetes

- **COURSE ASSIGNMENT**

**1 WEEK**

**Exam Week: Exam**

**1 WEEK**

**Buffer Week**

**1 WEEK**

## **C4. CAPSTONE**

- **CAPSTONE PROJECT**

**4 WEEKS**

The capstone project will stitch all the concepts learnt during the program

## **TOOLS AND LIBRARIES**

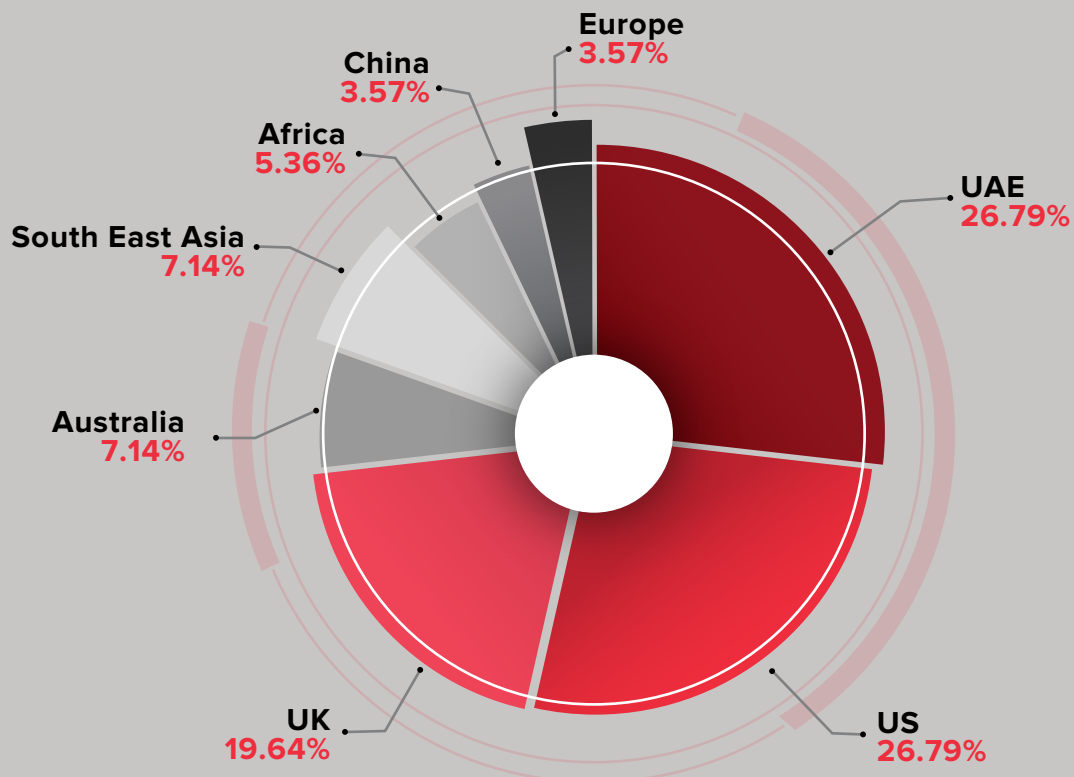
Java11, IntelliJ, Junit, Git and Github, Linux, Bash, Git and Github, AWS, ECS , "Prometheus/Nagios, Grafana, ELK/Cloudwatch, Elastic APM/Dynatrace", Jenkins, Selenium, , Maven/Gradle, SonarQube, Docker, Terraform, Ansible, Kubernetes,

# Meet the

# Class



## Opportunity to network with our international learners



# Hear from our learners



“ **Joel Varghese**  
Software Engineer,  
Zoreum Blockchain Labs

The program has been very useful and my experience with upGrad and the student mentors at upGrad has been very good. The content taught is very relatable and the method of delivery is also convenient for working professionals like us ”



“ **Kriti Jain**  
Software Engineer,  
Ministry of Defence

upGrad teaches complex topics in a very simple manner. The case studies are easily understandable and have added value to my resume and helped me bag a 125% salary hike. The curriculum is very relevant to today’s market scenario and the upGrad team has done a good job in bringing education right at our palms ”



“ **Akshay Mathur**  
Software Technologist,  
Philips

“The program has taught me a lot and the case studies have been very useful. The student mentors are very helpful and have helped me solve any and every problem that I have faced. It has been a great experience for me, I would definitely recommend the program to my friends. ”



“ **Kumar Shubham**  
SDET - II,  
Blackbuck

“With upGrad, my experience has been wonderful. Managing work and studying has been the best decision of my life, thanks to upGrad. While it seemed difficult in the beginning, my student mentor helped me plan my schedule and manage time to maintain a work-life-study balance, which truly saved me! upGrad helped me gain a 60% salary hike ”

# Program Details & Admission Process

## PROGRAM DURATION AND FORMAT

7.5 months | Online

## PROGRAM FEE

INR 99,000 (Incl. of all taxes)

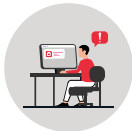
## PROGRAM START DATES

<https://www.upgrad.com/devops-certification-pgc-iiitb>

## ELIGIBILITY

Bachelor's Degree with 50% or equivalent passing marks. No coding experience required.

## WEEKLY COMMITMENT (12-15 hours/week)



6-7 HOURS

Asynchronous learning time.



6-7 HOURS

Assignments and projects.

## SELECTION PROCESS



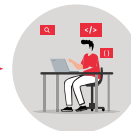
### STEP 1: Selection Test

Fill out an application and take a short 20-minute online test with questions



### STEP 2: Review and Shortlisting of Suitable Candidates

Our faculty will review all applications, consider the educational and professional background of an applicant and review the test scores wherever applicable. Following this, offer letters will be rolled out so you are assured a great peer group to learn and network with.



### STEP 3: Enrollment for Access to Prep Content

Make a quick block payment with assistance from our loan partners where required, receive immediate access to the prep content and begin your upGrad journey.

## FOR FURTHER INFORMATION, CONTACT

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