



iHUB DivyaSampark



Department of Science & Technology
Government of India



EXECUTIVE POST GRADUATE CERTIFICATION IN CLOUD COMPUTING

Master the necessary skills needed to be successful in
Cloud Computing & DevOps



10 Million
Learners



1:1 Personalized
Mentorship



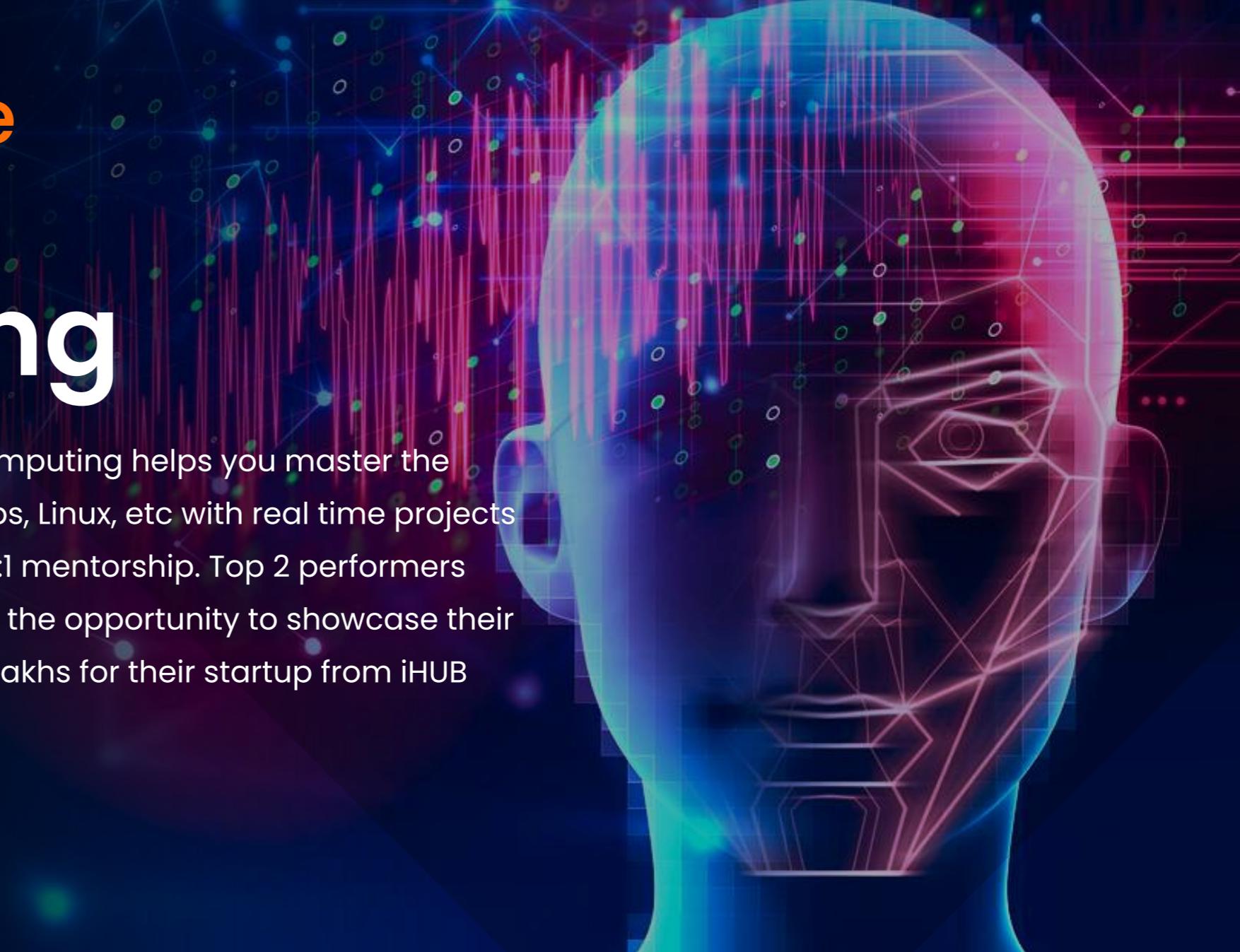
55% Average
Salary Hike

Executive Post Graduate Certification in Cloud Computing

This executive postgraduate certification course in cloud computing helps you master the skills of cloud computing and DevOps like AWS, Azure, DevOps, Linux, etc with real time projects & exercises. Learn from IIT faculty and Industry experts with 1:1 mentorship. Top 2 performers from each batch may get a fellowship worth Rs. 80,000, plus the opportunity to showcase their startup ideas and secure incubation support of upto Rs. 50 Lakhs for their startup from iHUB DivyaSampark, IIT Roorkee.



IBM Microsoft



Hottest Job of 21st Century



1.1 Million Job Postings

There is a global estimate of 1.1 million job postings for DevOps and Cloud Computing roles by 2025



Skill Development

DevOps and Cloud Computing professionals are equipped with various relevant skills that fetch lucrative job offers



Growing DevOps and Cloud Computing Industry

22.9% CAGR in the global DevOps and Cloud Computing industry by 2027



Future-oriented Career

DevOps and Cloud Computing is a budding field; a head start will prove to be beneficial



Popular Degree

43% of DevOps and Cloud Computing professionals have a master's degree



High Demand

By 2022, India and the US will face a demand-supply gap of 460,000 DevOps and Cloud Computing professionals

Our Credentials



10 Million+

Aspiring Students



1,000+

Industry-expert Instructors



400+

Hiring Partners



500+

Corporates Upskilled



55%

Average Salary Hike



155+

Countries' Learners

About Program

With the help of iHUB DivyaSampark, IIT Roorkee, you can become an expert in cloud computing. Learn in-demand skills, overcome real-world problems, and work on real-world projects to lay a solid foundation. This course is ideal for both beginners and experts due to its flexible learning environment and round-the-clock support.



Learning Format

Online Bootcamp



9 Months

Live Classes



Campus Immersion

IIT Roorkee



Executive PG

Certification

Key Highlights

- ✓ 216 Hrs Live Sessions
- ✓ 168 Hrs of Self-paced Learning
- ✓ 50+ Industry Projects & Case Studies
- ✓ One-on-One with Industry Mentors
- ✓ Placement Assistance
- ✓ 1:1 Mock Interviews
- ✓ Top 2 performers per batch will receive Rs 80000 in fellowship*
- ✓ 2 Days Campus Immersion at IIT Roorkee
- ✓ Certification from IBM and Microsoft
- ✓ 100+ Live sessions across 9 months
- ✓ 400 Hrs of Applied Learning
- ✓ 5 Capstone Projects
- ✓ Weekday/Weekend Batches
- ✓ Dedicated Learning Management Team
- ✓ Up to Rs. 50 Lakhs startup Incubation Support*
- ✓ Free Voucher for Exam AZ-104: Microsoft Azure Administrator worth \$99
- ✓ 3 Guaranteed Job Interviews upon movement to Placement Pool
- ✓ Learn from IIT Faculty and Industry Experts

Program Pedagogy



Instructor-led Training

Get trained by top industry experts



Hackathons

Get a sense of how real projects are built



Dedicated Learning Management Team

To help you with your learning needs



Peer Networking and Group Learning

Improve your professional network and learn from peers



Self-paced videos

Learn at your own pace with world-class content



Gamified Learning

Get involved in group activities to solve real-world problems



Projects and Exercises

Get real-world experience through projects



1:1 Personalized Learning

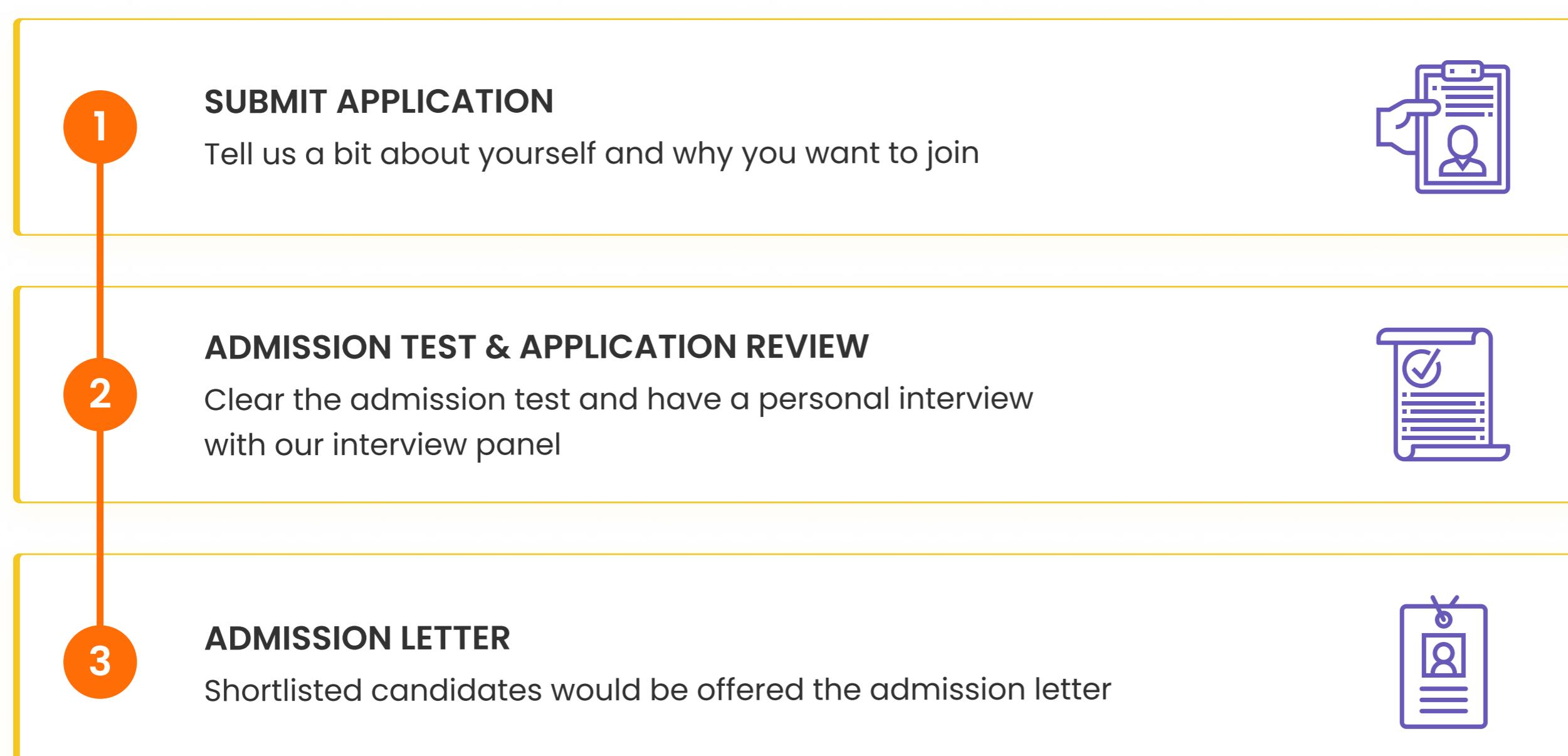
Hands-on exercises, project work, quizzes, and capstone projects

Who Can **Apply for the Course?**

- ✓ Anyone with a graduate degree and a keen interest to learn DevOps and cloud computing
- ✓ IT professionals looking to shift to DevOps and cloud computing
- ✓ Professionals wishing to get ahead in their careers
- ✓ DevOps and cloud computing professionals
- ✓ Undergraduate freshers with an interest in DevOps and cloud computing

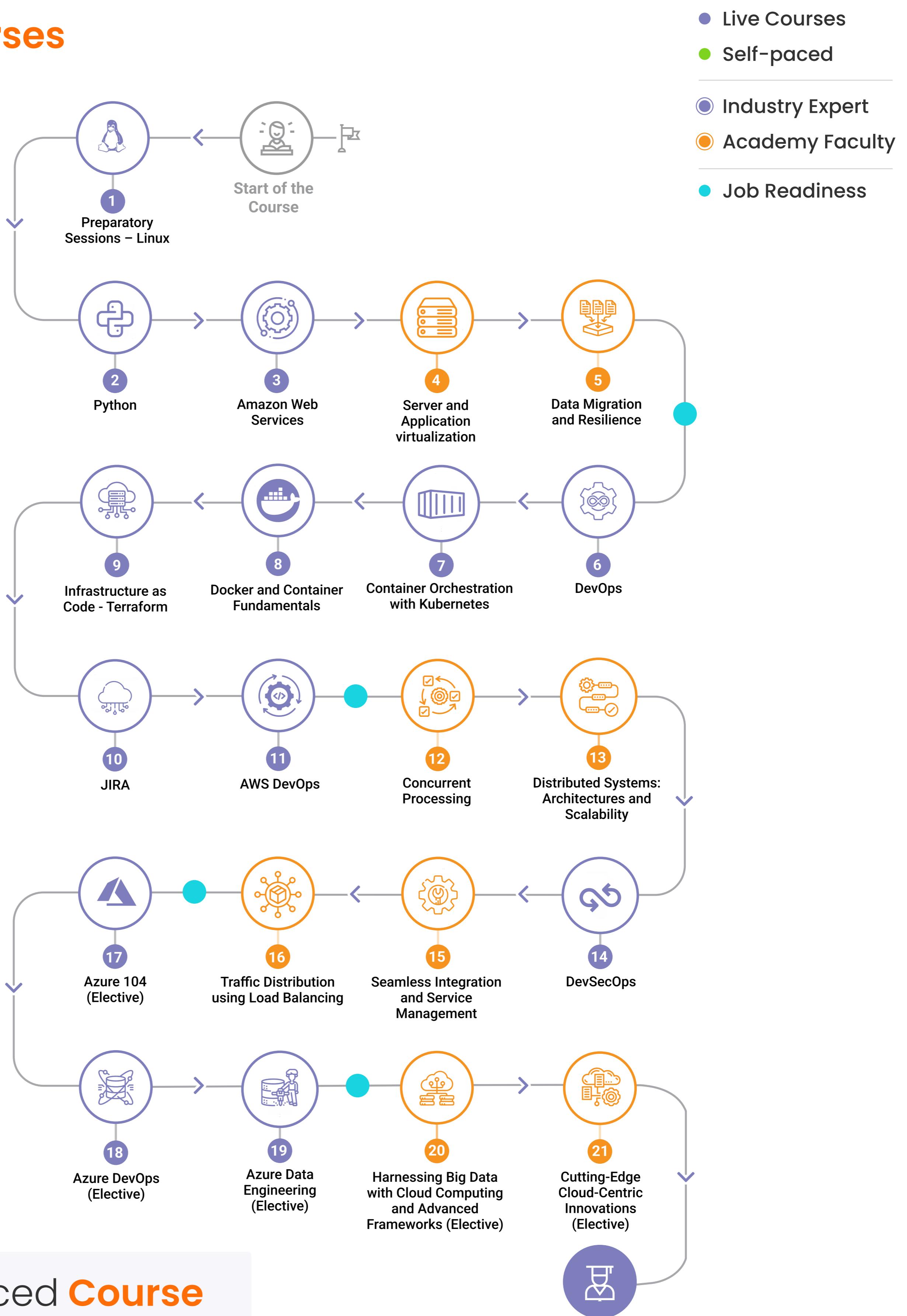
Application **Process**

The application process consists of three simple steps. Candidates have to submit their application. An offer of admission will be made to the selected candidates, and their application will be accepted upon the payment of the admission fee.



Learning Path

Live Courses



Self-paced Course

- Cloud Security

Executive Post Graduate
Certification in Cloud
Computing

Program Curriculum

Module 1

Preparatory Sessions – Linux

Linux

- Introduction to Linux
- Linux Basics
- Hands-on Sessions And Assignments for Practice

Module 2

Python

- Introduction to Python and IDEs
- Python Basics
- Object Oriented Programming
- Hands-on Sessions And Assignments for Practice

Module 3

Amazon Web Services

- Introduction to Cloud Computing & AWS
- Elastic Compute and Storage Volumes
- Load Balancing, Autoscaling and DNS
- Virtual Private Cloud
- Storage - Simple Storage Service (S3)
- Databases and In-Memory DataStores
- Management and Application Services
- Access Management and Monitoring Services
- Automation and Configuration management
- AWS Migration

Module 4

Server and Application virtualization

- What is Virtualization?
- Virtualization is not a new concept. Evolution of Virtualization.
- Type of Virtualization
- Server-based Virtualization
- Hypervisor-based Virtualization
- Type 1 v/s Type 2
- Full v/s Para
- Virtual machine lifecycle
- Virtual machine image: Structure, formats
- Virtual machine instance: Public cloud specific instance, allocating resources to
- Virtual machine instance, networking in virtual machine, Amazon Machine Instance

- VM Application
- Container Based Virtualization
- Container lifecycle
- Container image : Structure, formats
- Container instance: Allocating resources to container instance
- Networking in containers
- Unikernels: Structure, formats, allocation, networking in Unikernels
- Difference between VM, Containers and Unikernels
- Network Function Virtualization (NFV)

Module 5

Data Migration and Resilience

- Broad Aspects of Migration into Cloud
- Migration of virtual Machines and techniques
- Fault Tolerance Mechanisms

Job Readiness

- Job Search Strategy
- Resume Building
- Linkedin Profile Creation
- Interview Preparation Sessions by Industry Experts
- Mock Interviews
- Placement opportunities with 400+ hiring partners upon clearing the Placement Readiness Test.

Module 6

DevOps

- DevOps Fundamentals & Infrastructure Setup
- Version Control with Git
- Configuration Management using Chef, Ansible
- Continuous Testing using Selenium
- Continuous Integration with Jenkins
- Continuous Monitoring using ELK

Module 7

Container Orchestration with Kubernetes

- Application Design and Build
- Application Deployment
- Application observability and maintenance
- Application Environment, Configuration and Security

Program Curriculum

Module 8

Docker and Container Fundamentals

- Introduction to Docker
- Storing Data in Docker
- Docker Compose
- Container Orchestration
- Networking in Docker
- Docker Monitoring
- Introduction to Kubernetes
- Kubernetes Architecture
- Introduction to Pods and Services

Module 9

Infrastructure as Code – Terraform

- Introduction to Terraform
- Terraform Installation
- Terraform Configuration Management

Module 10

JIRA

- JIRA Software for Beginners
- Dashboards
- Admin Interface
- JIRA Administration
- JIRA Workflows
- Overview of Some Use Cases
- JIRA Plugins

Module 11

AWS DevOps

- Continuous Monitoring using Prometheus
- Prometheus Security and Use Cases
- Log Server and alerting in Nagios
- Software Lifecycle automation using AWS
- Automating Infrastructure using CloudFormation
- Application Deployment using Elastic Beanstalk

Job Readiness

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- Resume Building
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- Mock Interviews
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Module 12

Concurrent Processing

- Motivating Factor: Human Brain, The Need And Feasibility of Parallel Computing
- Moore's Law
- Elements of Parallel Computing: Factors affecting parallel system performance, Parallel Programming Models,
- Computational Power Improvement, Two Eras of Computing, Hardware architectures for parallel processing, Dependency Analysis & Conditions of Parallelism, Levels of Software Parallelism in Program Execution, Software Parallelism Types, Performance of Parallel Algorithms,
- Laws of Cautions, The Goal of Parallel Processing, Amdahl's Law, Gustafson's Law, Communication Cost Model. Demonstration for parallel application performance and its impacts

Module 13

Distributed Systems: Architectures and Scalability

- Distributed Computing System
- Software Architectural Styles

Module 14

DevSecOps

- Securing SDLC and CI/CD Pipeline
- Software Component Analysis (SCA) in CI/CD Pipeline
- Static Analysis (SAST) in CI/CD Pipeline
- Dynamic Analysis (DAST) in CI/CD Pipeline
- Infrastructure as Code and its security
- Compliance as Code
- Vulnerability Management

Module 15

Seamless Integration and Service Management

- Issues with interoperability
- Vendor lock-in
- Interoperability approaches
- SLA Management
- Metering Issues, and Report generation

Program Curriculum

Module 16

Traffic Distribution using Load Balancing

- Distributed Management of Virtual Infrastructures
- Server consolidation
- Dynamic provisioning and resource management
- Resource Optimization, Resource dynamic reconfiguration
- Scheduling Techniques for Advance Reservation
- Capacity Management to meet SLA Requirements, and Load Balancing
- Various load balancing techniques

Job Readiness

- Job Search Strategy
- Resume Building
- Linkedin Profile Creation
- Interview Preparation Sessions by Industry Experts
- Mock Interviews
- Placement opportunities with 400+ hiring partners upon clearing the Placement Readiness Test.

Electives:

Module 17

Azure 104

- Introduction to Microsoft Azure
- Introduction to ARM and Azure Storage
- Introduction to Azure storage
- Azure Virtual Machines
- Azure App and Container services
- Azure Networking – I
- Azure Networking – II
- Authentication and Authorization in Azure using RBAC
- Microsoft Azure Active Directory
- Azure Monitoring

Module 18

Azure DevOps

- Introduction to Microsoft Azure
- Introduction to ARM & Azure Storage
- Introduction to Azure storage
- Azure Virtual Machines
- Azure App and Container services
- Azure Networking – I
- Azure Networking – II
- Authentication and Authorization in Azure using RBAC
- Microsoft Azure Active Directory

```
modifier ob.select=1
 bpy.context.scene.objects.active = modifier_ob
 print("Selected" + str(modifier_ob)) # modifier ob is
 modifier_ob.select = 0
 ob = bpy.context.object.select_to_active_object(modifier_ob)
```

- Azure Monitoring
- Infrastructure Setup
- Introduction to DevOps
- Continuous Testing
- Continuous Integration using Jenkins
- Software Version Control
- Continuous Deployment: Containerization with Docker
- Containerization with Docker: Ecosystem and Networking
- Configuration Management using Ansible
- Continuous Orchestration using Kubernetes
- Terraform Modules & Workspaces
- Azure DevOps and Azure Repos
- Azure Artifacts and Azure Test Plans
- Azure Pipelines
- Azure Boards
- Terraform with Azure

Self Paced

- MAVEN
- SONARQUBE
- XLDEPLOY
- TEAMCITY
- JFROG
- MS BUILD
- NEXUS
- NPM
- ELK

Module 19

Azure Data Engineer

- Non-Relational Data Stores and Azure Data Lake Storage
- Data Lake and Azure Cosmos DB
- Relational Data Stores
- Why Azure SQL?
- Azure Batch
- Azure Data Factory
- Azure Data Bricks
- Azure Stream Analytics

Job Readiness

- Job Search Strategy
- Resume Building
- Linkedin Profile Creation
- Interview Preparation Sessions by Industry Experts
- Mock Interviews
- Placement opportunities with 400+ hiring partners upon clearing the Placement Readiness Test.

Program Curriculum

Module 20

Cloud Security

- Infrastructure Security: Network level security, Host level security, Application-level security
- Data security and Storage: Data privacy and security issues, Jurisdictional issues raised by Data location
- Identity & Access Management
- Access Control
- Trust, Reputation, Risk
- Authentication in cloud computing, Client access in cloud, Cloud contracting Model, Commercial and business considerations

Module 21

Harnessing Big Data with Cloud Computing and Advanced Frameworks

- *OpenStack*: Enabling Scalable Infrastructure for Big Data Processing
- *Google App Engine*: Powering Big Data Applications on the Cloud
- *MapReduce and Beyond*: Expanding Horizons of Big Data Processing in the Cloud
- *HDFS*: Distributed File Storage for Big Data Analytics in Cloud Environments
- *GFS*: Revolutionizing Big Data File Systems in the Cloud

Module 22

Cutting-Edge Cloud-Centric Innovations

- Mobile Cloud Computing, Auctioning in cloud
- Grid of Clouds
- Sustainability Unleashed: The Green Cloud Approach
- Mobile Cloud Computing: Where Mobility Meets Scalability
- Resource Allocation Dynamics: Cloud Auctioning Strategies
- Fog
- Edge Computing: Real-Time Intelligence at the Fringe
- IOT
- Network Evolution: Virtual Network Functions in Focus
- Software Defined Networking (SDN) Meets the Cloud
- Harmonizing Cloud, Fog, IoT, and SDN Technologies

Skills to Master

- AWS
- Elastic Compute
- VPC
- CloudFormation
- DevSecOps
- Continuous Testing
- Continuous Integration
- Continuous Monitoring using ELK
- Access Management and Monitoring Services
- AWS Migration
- Version Control with Git
- Application Deployment
- Data Virtualization
- Devops on AWS
- Load Balancing, Autoscaling and DNS

Tools to Master



Course Projects

Projects cover the following industries:



Retail



Social Media



Supply Chain



Entrepreneurship



E-commerce



Banking



Healthcare



Insurance

Beginner

Deploy an App on Kubernetes using CI/CD Pipelines

This application deployment project offers practical learning to successfully create a CI/CD pipeline integrated with Kubernetes. Also, containerize the code pushed in Git, save the Docker image, and push the image to Dockerhub.

Beginner

Create Custom Containers in Docker

Build a custom container from the base Ubuntu container. This hands-on project also requires the learners to successfully create a Dockerfile, pushing the container to Dockerhub, and also create custom Docker images.

Beginner

Deploy a Multi-tier Website using AWS EC2

Enable fast scaling of a website using AWS, while ensuring low or zero upfront cost. This multi-tier website deploying project also requires learners to successfully launch an EC2 instance to develop and deploy applications.

Intermediate

Send Notifications to Patients using Push Notifications

The project is based on a dataset related to the medical industry. It will allow you to design an architecture to send notifications to patients based on their doctors' feedback. Using SNS will increase reliability and resilience.

Intermediate

Employee Management System on AWS

Using DynamoDB and RDS and AWS core services, build and manage an efficient and robust employee management system, where data input fetches related fields from the database.

Advance

Deploy a Functional Web Application While Gradually Shifting from RDS MySQL to Aurora MySQL

Master smooth migration from Amazon RDS MySQL to Aurora MySQL with minimal downtime. Employ CloudFormation to set up a full web app, utilizing RDS Read Replicas, promoting to Aurora MySQL, and redirecting connections.

Advance

Using CloudFormation for Cross Region Infrastructure Provisioning

This initiative employs AWS CloudFormation to adeptly deploy infrastructure across diverse AWS accounts and regions. It offers a holistic automation solution for efficient provisioning and administration of AWS resources centrally.

Advance

Web Application Deployment on Azure

We will deploy a web application using Azure where we will store the web inputs in Azure Storage and Application Gateway will manage the global traffic on application.

Advance

Database Orchestration Using AWS

We will create private and public instances(EC2) to manage the application database(stored in RDS), using Kubernetes, CodePipeline and CodeCommit.

Advance

End-to-End Application (CI/CD and Containerization)

We will automate the process of testing and deployment of an application using WebHook triggers, Jenkins(CI/CD), and Docker(containerization). And, the infrastructure will be set up using the Configuration Management tool - Ansible.

Course Advisors / Faculty

Manish Anand



CEO at iHUB IIT Roorkee

Manish Anand is an IIT Kanpur alumnus with an MBA in Technology and innovation management from Korea Advanced Institute of Science and Technology (KAIST), Seoul. He currently heads iHUB DivyaSampark, a Technology Innovation Hub hosted at IIT Roorkee.

Dr. Sudeb Das Gupta



Professor at IIT Roorkee

Dr. Sudeb Dasgupta is currently working as Professor at IIT Roorkee. He has completed his PhD from Banaras Hindu University in Electronics Engineering and has more than 20 years of teaching experience.

Dr. Balasubramanian R



Professor at IIT Roorkee

Dr. Balasubramanian R, is currently working as Professor at IIT Roorkee. He has completed his PhD from IIT Madras in Mathematics and Computer Science and has more than 20 years of teaching experience. His areas of interest include computer vision, machine learning, pattern recognition, deep learning, etc.

Dr. Sushanta Karmakar



Associate Professor at IIT Guwahati

Dr. Sushanta Karmakar is currently working as Associate Professor, at IIT Guwahati. He has completed his PhD from IIT Kharagpur from the Computer Science and Engineering department and has over 15 years of teaching experience.

Mr. Rupesh Nasre



Associate Professor at IIT Madras

Mr Rupesh Nasre is currently working as an associate professor in the CSE Department at IIT Madras. He holds a PhD from IISc Bangalore, and Post-Doctoral Fellowship from the University of Texas at Austin.

Rupinder Singh



Lead Consultant at Xebia

Mr. Singh is currently working as Lead Consultant at Xebia. He has worked in several top-notch companies like Wipro, Infosys, Accenture, and many more. He has 11 years of work experience. He is a skilled Cloud Architect and DevOps Architect.

Srikanth Sharma



Engagement Manager at Amazon

With over 15+ years of experience in developing and architecting Cloud solutions, Mr. Sharma works at AWS as an Engagement Manager. He has also worked as a Technical Consultant Team Lead at Microsoft and other well-known companies like Tesla Motors and Wipro.

Course Advisors / Faculty



Shajee Pulukkool

Head – Data & Analytics at Rapyder Cloud Solutions

Mr. Pulukkool is currently working at Rapyder Cloud Solutions Pvt. Ltd. as the head of Data & Analytics. He is a technology enthusiast with 22+ years of experience in software solutions, including 8+ years in Bigdata & Analytics, and 6+ years in AWS Cloud.



Muthusamy Manigandan

Data Science Consultant, Ex- Apple

Manigandan has 16+ years of experience in cloud projects for Fortune 500 companies. He comes with a strong background in architecture and implementation of AWS, Azure, GCP, along with hands-on experience in DevOps tools.



Pankaj Saxena

Sr. Director- Cloud Operations at Oracle

He carries 24 years of experience in managing complex & heterogeneous infrastructure alongside delivering cloud-based software solutions to customers. He comes with vast experience in multiple tools and technologies and building complex systems.



Birendra Kumar Sahu

Head of Data Engineering and Science at Razorpay

In his 15+ yrs of IT experience, he has achieved excellence and was appointed as the CTO & VP-Engineering for a Big Data patent pending product. He has contributed to 85 intellectual disclosure reports, 4 USA patents, 4 orange books, articles & papers.



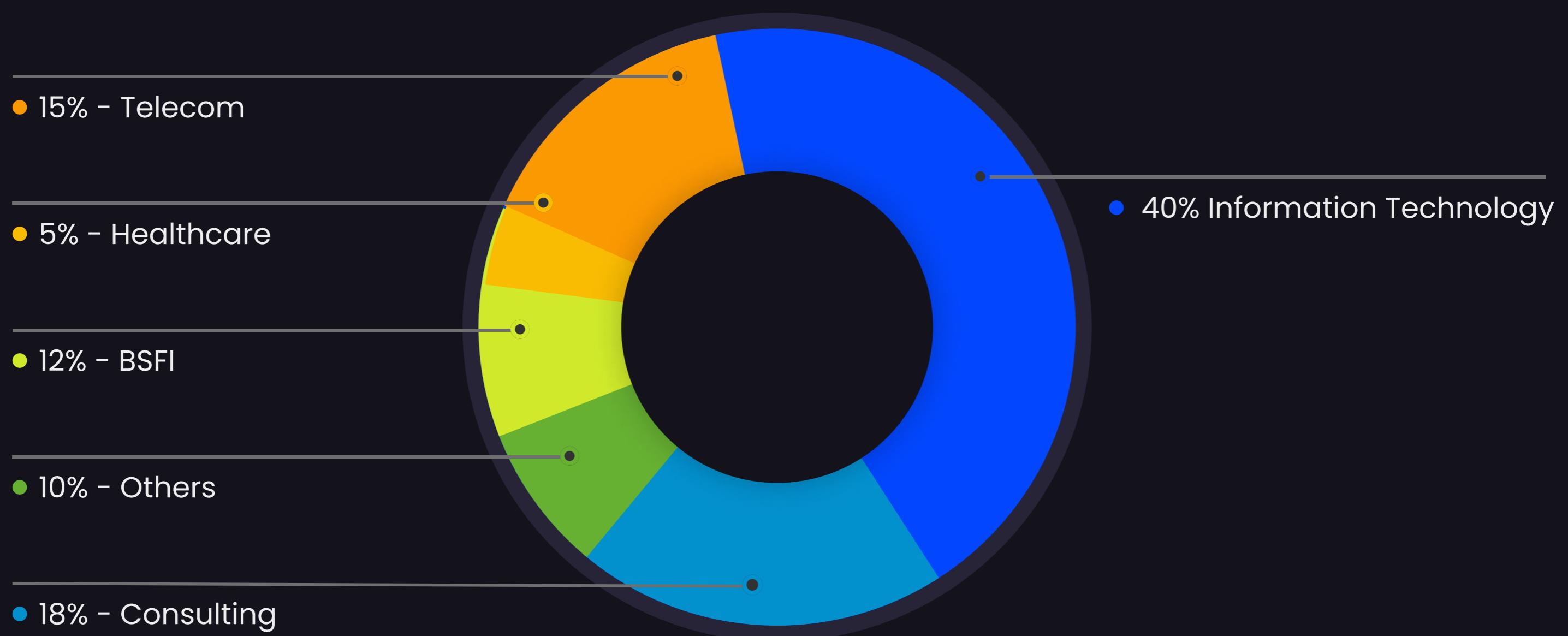
Suman Mukhopadhyay

Senior Director and Head of Technology Infrastructure / Cloud at EdgeVerve

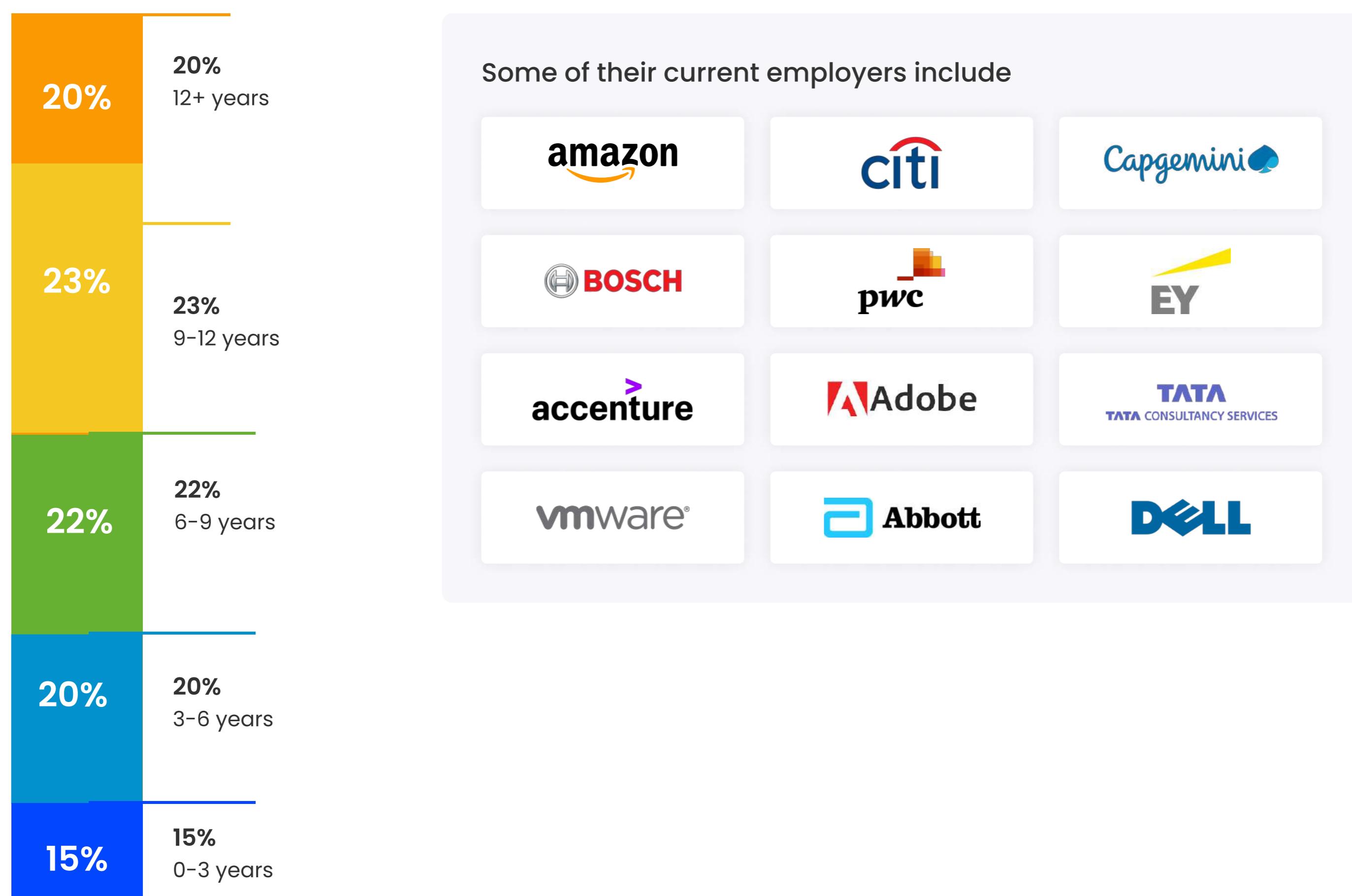
He has 23 yrs of experience in IT. Suman worked at top MNCs like Wipro, AT&T, Yahoo, Walmart etc. Skilled in Leadership, IT Budget Ownership, Incident management, Hadoop Solution and Design and managing teams across various geographies.

Meet the **Batch**

Industries Our Learners Come From



Work **Experience**



Glimpse of our Successful Transitions



4.6 ★★★★☆



4.5 ★★★★☆



4.38 ★★★★☆

Career Transitions



Intellipaat Career Services



500+
Webinars



600+
Job Shares



400+
Hiring Partners



55%
Avg. Salary Hike*

What Makes Us **Tick**



Career-oriented Sessions

Attend 10+ career-oriented sessions by industry mentors and plan your career trajectory



Profile Building

Craft a DevOps and Cloud Computing resume and a LinkedIn profile to make an impression on top employers



Mock Interview Preparation

Prepare with mock interviews including most asked questions by top employers



1:1 Mentoring Sessions

Get 1:1 guidance at every step in your career transition to DevOps and Cloud Computing



3 Guaranteed Interviews

Guaranteed 3 job interviews upon movement to the placement pool after clearing the Placement Readiness Test (PRT). Get interviewed by our 400+ hiring partners.**



Dedicated Job Portal Access

Get exclusive access to 200 job postings per month on Intellipaat's job portal



Job Fairs

Job fairs are conducted regularly to introduce learners to major organizations



Hackathons

Work in teams and get exclusive access to hackathons

Learner **Reviews**



Nick Vlachos

Cloud Technical Specialist

Well explained study material. I liked this Cloud Architect course very much and the content was very systematic. The trainers were experts in their domains and answered all of my questions.

“



Anji Pulusu

Java Developer at Fannie Mae

Intellipaat delivered a great learning experience which was more than expected. This Cloud Architect certification was worth it and I am totally satisfied with the content and the way trainers taught in the sessions.

“



Gaurav Tiwari

Senior Web Developer at Insta Group

It was a great learning experience at Intellipaat. I must say that they have a very good set-up for conducting online classes. The assignments and quizzes provide a hands-on experience.

“

Program Partners



About Intellipaat

Intellipaat is one of the leading online training providers with more than 10 million learners in over 155 countries. We are on a mission to democratize education as we believe that everyone has the right to quality education.

We create courses in collaboration with top universities and MNCs for employability like EICT IIT Roorkee, EICT IIT Guwahati, IITM Pravartak, IIM Ranchi, IIT Jammu, IU, LSBU, University of Essex, University of Liverpool, IBM, Microsoft, etc.

Our courses are delivered by SMEs & our pedagogy enables quick learning of difficult topics. 24/7 technical support & career services help learners to jump-start their careers.



About iHUB DivyaSampark, IIT Roorkee

iHUB DivyaSampark, IIT Roorkee aims to enable an innovative ecosystem in new-age technologies like AI, ML, Drones, Robots, and data analytics (often called CPS technologies). It aims to do this by promoting and enhancing core competencies, capacity building, and manpower training to provide solutions for national strategic sectors and become a significant contributor to Digital India.

Achievements – IIT Roorkee:

- Ranked 7th 'Overall' and 6th in 'Engineering' in India as declared by NIRF 2022
- Ranked 175th in the world for 'Engineering and Technology' by QS World University Rankings 2023
- Ranked as the 369th best institute in the world by QS World University Rankings 2023
- Ranked as the 114th best institute in Asia by QS World University Rankings 2023

Upon the completion of this program, you will:

- Certification from iHUB DivyaSampark, IIT Roorkee



Collaboration with IBM and Microsoft

IBM and **Microsoft** are leading innovators and the biggest players in creating innovative Cloud and DevOps tools. In this Master's course, top subject matter experts will share knowledge in the domain of Cloud and DevOps.

Benefits of this collaboration for learners:

- Industry-recognized course completion certification from IBM and Microsoft



10 Million Learners & 500+ Corporates across 155+ countries
upskilling on Intellipaat Platform



Contact Us

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