




Advance Certificaton DevOps and Cloud Computing Course

E&ICT Academy, IIT Guwahati

Delivered in Partnership with  OdinSchool

Course Overview

Discover the essential skills that will elevate your career in today's tech-driven world.

- Advanced Certification from E&ICT Academy, IIT Guwahati
- Live Online Classes
- 2-Day Campus Immersion at IIT Guwahati (for successful learners only)
- Alumni status at E&ICT Academy, IIT Guwahati

Beginning with Linux fundamentals, the learners of this course will compare Linux distributions with Windows, navigate the file system, manage file permissions, and gain proficiency in shell scripting and network configuration. The curriculum also covers cloud computing models (IaaS, PaaS, SaaS) and platforms (AWS, GCP), alongside DevOps practices such as CI/CD, version control with Git, and containerization with Docker and Kubernetes.

As the course progresses, you will learn to deploy and manage AWS services, configure databases, and automate infrastructure with CloudFormation, while applying security best practices. The course culminates in a Capstone project that integrates all learned concepts.



Duration: 6 Months

Mode of Learning: Live Online Sessions

5 top high paid job roles you can land after completing this course:

1. AI/ML Engineer
2. Cloud Solutions Architect
3. Cloud Security Specialist
4. Site Reliability Engineer (SRE)
5. DevOps Engineer

Eligibility Criteria

Join this DevOps and Cloud Computing Course if you have a Bachelor's degree! A background in Mathematics or Computer Science is preferable but not mandatory.

Who can join?

- Professionals aiming to advance their career as a Cloud Architect.
- IT professionals with a bachelor's degree who wish to transition into cloud computing.
- Individuals with a bachelor's degree and a strong interest in Cloud and DevOps technologies.
- Project and Product Managers seeking to enhance their skills in Cloud and DevOps.
- Developers interested in leveraging Cloud Computing for application development and platform creation.

- ◆ **Get advanced certificate from the prestigious E&ICT Academy, IIT Guwahati**

You'll earn an advanced certification from the renowned E&ICT Academy at IIT Guwahati, one of India's leading institutes. This certification not only validates your skills in Cloud Computing and DevOps but also boosts your resume, giving you a competitive edge in the job market. Having a certification from IIT Guwahati adds tremendous value and credibility to your professional profile.
- ◆ **Attend 150+ hours of interactive sessions by experts**

The course offers over 150+ hours of live, interactive classes delivered by industry experts and academic professionals. These sessions are designed to be engaging and allow you to ask questions, participate in discussions, and gain deep insights into Cloud Computing and DevOps concepts. It's not just about learning but also about interacting with leaders in the field.
- ◆ **Engage in hands-on project-based learning with 20+ projects**

You won't just learn theory; you'll apply what you learn through 20+ real-world projects. This hands-on approach ensures that by the time you complete the course, you'll have practical experience in Cloud Computing and DevOps. These projects simulate industry problems, allowing you to showcase your skills and knowledge to potential employers.
- ◆ **Attend a 2-day immersion and networking opportunity at IIT Guwahati campus**

As part of the course, successful learners will have the opportunity to visit IIT Guwahati for a two-day immersion program. This visit includes networking sessions with peers, industry experts, and the faculty. It's a fantastic opportunity to make valuable connections, gain exposure to the campus environment, and experience firsthand what it's like to be part of one of India's premier institutions.
- ◆ **Get access to Career Services to assist you in making career transitions**

You'll have access to comprehensive career services that support your job search and career transitions. This includes resume building, interview preparation, and career guidance from experts. Whether you're looking to switch industries, move up the ladder, or land your first job in AI, these services are designed to help you achieve your goals.
- ◆ **Participate in hackathons, case study discussions, Q & A sessions with experts**

Throughout the course, you'll engage in hackathons and case study discussions that push you to apply your knowledge in challenging scenarios. These activities are not just about competing; they are about learning from real-world problems. Q&A sessions with experts provide additional opportunities to clear doubts and gain deeper insights into the world of Cloud Computing and DevOps.
- ◆ **Embrace a certification-aligned learning pathway**

Our course is meticulously designed to align with the most in-demand AWS certifications, ensuring that you're not only learning theoretical concepts but also acquiring the practical skills needed to excel in AWS certification exams. Here's your certification pathway:

 - ◇ **AWS Certified Cloud Practitioner**

Within 12 weeks of joining the program, you'll be well-prepared to take on the AWS Certified Cloud Practitioner exam.
 - ◇ **AWS Certified Solutions Architect – Associate**

After 20 weeks of guided learning and hands-on practice, you'll be equipped with the knowledge and skills to appear for the AWS Certified Solutions Architect – Associate exam.
 - ◇ **AWS Certified Solutions Architect – Professional**

By the end of the program, you'll be well-prepared to attempt the AWS Certified Solutions Architect – Professional exam.

Course Outcomes

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

- Compare and contrast Linux distributions with Windows OS, navigate the Linux file system structure, and effectively manage file permissions and ownership using basic command-line commands.
- Become proficient in managing Linux files, directories, and automation via shell scripting, as well as configuring network interfaces and firewall rules and have foundational skills in Linux security, SSH configuration, user management, and basic package management.
- Have a solid understanding of cloud models (IaaS, PaaS, SaaS), key platforms (AWS, GCP), and core infrastructure concepts. They will demonstrate knowledge of DevOps culture, CI/CD, Git, Docker containerization, Kubernetes orchestration, and apply security best practices, including DevSecOps, IAM, and firewalls.
- Deploy and manage AWS services like EC2, S3, RDS, and Lambda, with an understanding of AWS networking (VPCs) and security models (IAM, Security Groups, NACLs). Students will also configure databases (RDS, DynamoDB), automate infrastructure with CloudFormation, and apply best practices for cost management, security, disaster recovery, and workload migration using the Well-Architected Framework.
- Explain fundamental concepts of parallel computing and its relevance to Moore's Law, differentiate between parallel computing architectures, and analyze constraints using Amdahl's and Gustafson's laws.
- Differentiate between parallel and distributed computing systems and understand key architectural styles, including client-server, peer-to-peer, microservices, and serverless.
- Implement and simulate distributed systems on cloud platforms like AWS and evaluate the performance of parallel applications in real-world settings.
- Understand advanced cloud computing concepts, including virtual machine lifecycles, cloud migration, and fault tolerance.
- Implement AI-powered monitoring in DevOps pipelines and design hybrid and multi-cloud solutions by integrating AWS with other services like GCP and on-premises systems, following best practices for deployment and management.
- Design and implement a capstone project that integrates cloud infrastructure, DevOps automation, container orchestration, and AWS services.



Curriculum

Weeks 1-3

Orientation & Linux Basics

Week 1 (Orientation)

- ◆ Introduction to the curriculum & program structure
- ◆ Walkthrough of LMS
- ◆ Best practices & mindset for success

Week 2 (Linux Operating System Basics)

- ◆ Linux distributions (Ubuntu, CentOS, Fedora)
- ◆ File system structure and basic commands: ls, cd, pwd, chmod

Week 3 (Linux File Management & Permissions)

- ◆ File and directory manipulation (cp, mv, rm, mkdir)
- ◆ File permissions, ownership, and groups: chmod, chown
- ◆ File compression: tar, gzip, zip

Weeks 4-7

Linux Advanced Concepts

Week 4 (Shell Scripting Basics and CI/CD Concepts)

- ◆ Introduction to shell scripting
- ◆ Variables, loops, conditionals
- ◆ Shell utilities: grep, awk, sed
- ◆ CI/CD concepts, GIT Basics

Week 5 (Linux Networking Basics)

- ◆ Networking commands: ifconfig, ip, ping
- ◆ Configuring network interfaces
- ◆ SSH setup for remote access

Week 6 (Linux Security)

- ◆ User and group management
- ◆ Securing SSH connections
- ◆ Firewalls: iptables and ufw

Week 7 (Linux Package Management)

- ◆ Package managers: apt, yum
- ◆ Installing and updating software
- ◆ Managing repositories

Weeks 8-10

Cloud Computing And AWS Core Services

Week 8 (Cloud Computing)

- ◆ Difference between IaaS, PaaS, and SaaS cloud service models.
- ◆ Benefits and challenges of adopting cloud systems.
- ◆ Cloud billing models
- ◆ Business decision on which model or plans to use

Week 9 (Introduction to AWS Cloud)

- ◆ AWS overview: EC2, S3, RDS, VPC, Lambda
- ◆ Global infrastructure: Regions, Availability Zones
- ◆ AWS Management Console

Week 10 (AWS EC2 and Elastic Load Balancing)

- ◆ Launching and managing EC2 instances
- ◆ Auto-scaling and Elastic Load Balancing

Weeks 11-13

Cloud Computing And AWS Core Services

Week 11 (AWS S3 and Storage Solutions)

- ◆ Introduction to the curriculum & program structure
- ◆ Walkthrough of LMS
- ◆ Best practices & mindset for success

Week 12 (AWS Identity and Access Management - IAM)

- ◆ IAM overview: Users, groups, roles, and policies
- ◆ Configuring roles and access control
- ◆ Multi-factor authentication (MFA)

Week 13 (AWS VPC and Networking)

- ◆ VPC basics: Subnets, route tables, and gateways
- ◆ Security groups and NACLs

Curriculum

Weeks 14-17

AWS Advanced Services

Week 14 (AWS RDS and Databases)

- ◆ Setting up relational databases with RDS
- ◆ DynamoDB (NoSQL) and ElasticCache

Week 15 (AWS Lambda and Serverless Architecture)

- ◆ Serverless computing with AWS Lambda
- ◆ Event-driven architecture: Triggers with S3, API Gateway

Week 16 (AWS CloudFormation and Infrastructure as Code)

- ◆ Introduction to CloudFormation: Infrastructure as code
- ◆ Creating and managing stacks

Week 16 (AWS CloudWatch and Monitoring)

- ◆ Monitoring and logging with CloudWatch
- ◆ Custom metrics, alarms, and CloudTrail for auditing

Week 17 (AWS Security Best Practices)

- ◆ Security best practices: Shared responsibility model
- ◆ Encryption, KMS, and securing AWS accounts

Weeks 18-20

AWS AI Services And Bedrock

Week 18: Introduction to Machine Learning Models

- ◆ Regression, Decision Trees,
- ◆ Neural Networks (NN),
- ◆ Convolutional Neural Networks (CNN),
- ◆ Deep Neural Networks (DNN),
- ◆ Random Forest,
- ◆ Ensemble Models

Week 19 (Introduction to AI in the Cloud and AWS Bedrock)

- ◆ Overview of AI in cloud computing
- ◆ Introduction to AWS Bedrock for building, training, and deploying machine learning models
- ◆ Exploring pre-trained models and integration with other AWS services

Week 20 (Amazon Polly: Text-to-Speech Services)

- ◆ Introduction to Amazon Polly: Text-to-speech services
- ◆ Customizing speech, adjusting speed, tone, and pronunciation
- ◆ Integrating Amazon Polly with applications

Weeks 21-23

AWS AI Services And Bedrock

Week 21 (Amazon Textract: Document Processing with AI)

- ◆ Introduction to Amazon Textract: Automatic text and data extraction
- ◆ Extracting text, tables, and forms from documents
- ◆ Hands-on with Textract: Scanning and extracting data from documents

Week 22 (Building AI Workflows with AWS Services)

- ◆ Combining AWS Bedrock, Polly, and Textract for AI workflows
- ◆ Building AI-driven solutions with AWS Lambda, S3, and other services
- ◆ Automating data extraction and analysis with Textract and Polly

Week 23 (AI-Powered Automation and Cloud Solutions)

- ◆ Using AI to automate tasks in cloud applications
- ◆ AI-powered DevOps workflows: Automating cloud infrastructure management
- ◆ Case studies and best practices for using AI in AWS environments

Weeks 24-25

Capstone Project

Week 24-25 (Capstone Project)

- ◆ Hands-on project combining Linux, AWS core services, and AI solutions
- ◆ Design and deploy an AI-enhanced cloud application
- ◆ Final project presentation and peer feedback

Projects

Project 1

Host your own WebServer - Go on and host your own web server in the Cloud

In this project, you'll take full control by setting up your very own Linux-based web server on AWS EC2. You'll learn how to configure an instance, install a web server (like Apache or Nginx), and host a website accessible across the globe. Whether you're hosting a personal blog, portfolio, or web app, this hands-on experience will provide you with the foundation you need to manage real-world server environments.

Project 2

Create your Own Portfolio without server - Website Hosting with AWS S3

Why rely on traditional hosting when you can use AWS S3 to host your own static website? In this project, you'll create and deploy a personal portfolio website without the need for managing servers. Learn how to store and serve files via S3.

Project 3

Launch 5 servers in 5 mins - Automate EC2 Instance Deployment

Speed and efficiency are crucial in cloud environments. In this challenge, you'll automate the process of launching multiple EC2 instances using the AWS CLI. You'll set up everything, from security groups to key pairs, in under 5 minutes, demonstrating the power of infrastructure as code. This is perfect for building environments quickly in a scalable and repeatable way.

Project 4

Own web application on Cloud - AWS Lambda with S3 integration

In this serverless project, you'll deploy a web application that leverages AWS Lambda and S3. Learn how to create Lambda functions to handle backend logic, such as image processing or form submissions, while using S3 for data storage. This project will teach you how to build scalable, cost-efficient applications without managing any servers!

Project 5

Build your first API - RESTful API with AWS cloud

APIs are the backbone of modern web applications. In this project, you'll build a RESTful API using AWS API Gateway and AWS Lambda. You'll connect the API to a DynamoDB database for data persistence, allowing users to create, retrieve, update, and delete data through the API. This project equips you with the skills needed to design, build, and deploy scalable APIs in the cloud.

Meet your instructors



Siva Subramanian Jeyakumar
Technology Lead
Infosys Technologies



Mahesh Babu Ch
Technical Trainer & Member of SST
SunStone



Abidunnisa Begum
Lead Faculty
OdinSchool



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Fee Structure


1,20,000 + GST

Contact us to avail Scholarships
Easy finance and Zero-Interest EMI facility available




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