Cloud Computing and DevOps Course

with AI/ML

Microsoft Azure · aws · Google Cloud
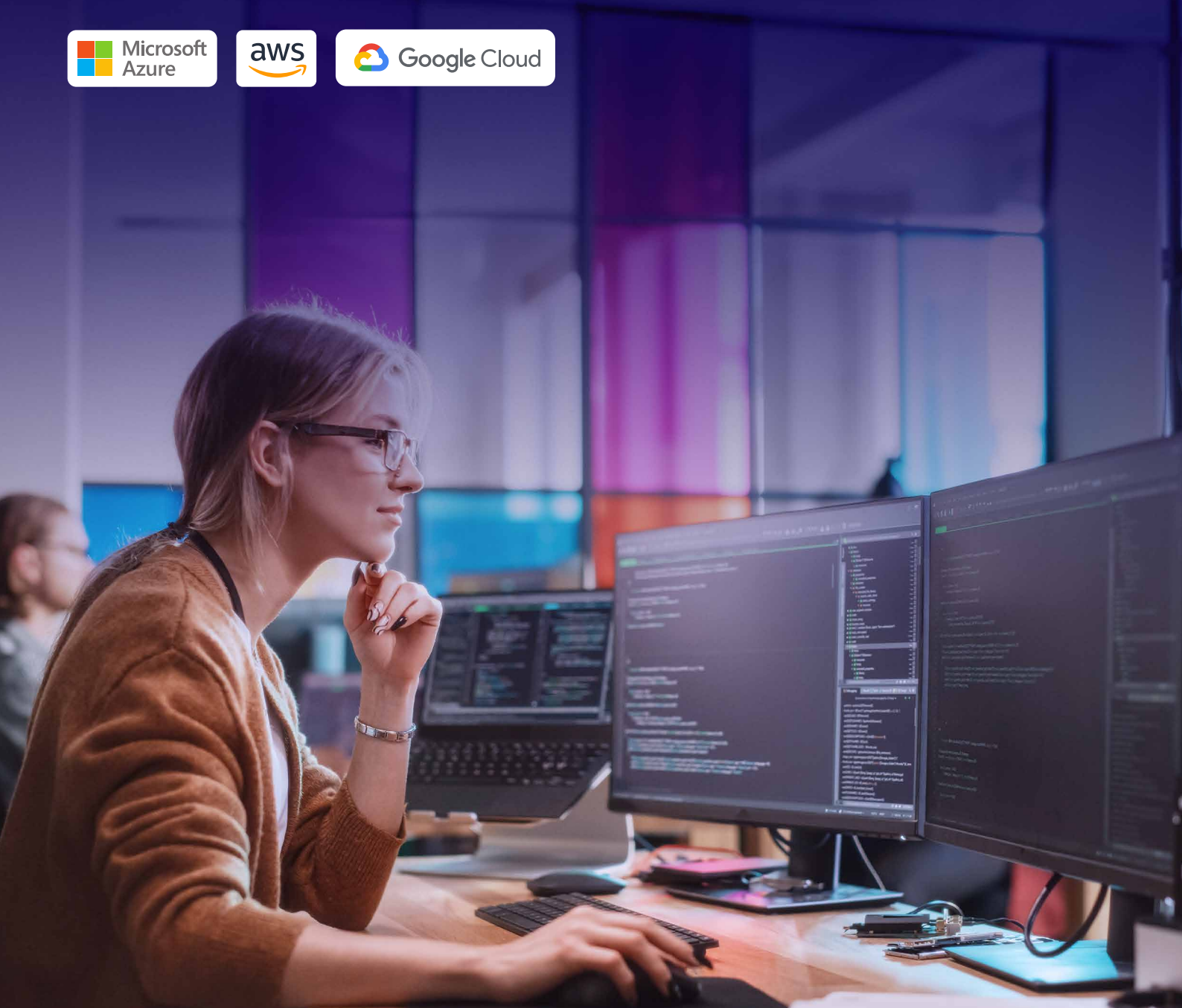
🌐 International Certification | 🔍 Capstone Projects | 📶 Live Classes

Index

About Us

Empowering Students Through Revolutionary
Upskilling Digital Courses

Experience the innovation of Digital Regenesys, the groundbreaking online platform brought to you by Regenesys, a global educational institution renowned for its 25+ years legacy of providing quality and holistic education.

Embark on a transformative journey with Digital Regenesys.

- ✅ We provide cutting-edge digital courses
- ✅ We empower individuals to upskill in futuristic domains that span multiple industries.
- ✅ Our platform has a track record of transforming lives and propelling careers.
- ✅ We have successfully guided over 300,000+ learners to upskill and secure placements in top multinational corporations worldwide.

Live (•)
Interactive Classes

Shaping Careers Since
25+ Years

Esteemed Alumni
300,000+

Expert Global
Faculty

Students from
180+ Countries

Chairman's Message

Dr. Marko Saravanja

Executive Chairperson
Regenesys Group

I am delighted to welcome you to Digital Regenesys, part of the Regenesys Group. The purpose of Regenesys is to help individuals awaken their potential and achieve their dreams. New technologies, social media, and innovation have sparked a digital revolution that is rapidly changing the world. The digital revolution demands a new breed of professionals to succeed in the new digital world. To give you a competitive advantage, we have developed cutting-edge digital programmes in the areas of information technology and management. Our programmes are facilitated by leading experts, entrepreneurs, and academics from top local and international institutions.

Regenesys is a global education institute with presence in USA, South Africa, India, Nigeria, Kenya, Tanzania, Croatia & Uganda, delivering cutting-edge online and contact learning programmes. Over the past 25 years, Regenesys has educated more than 300,000 students from 190+ countries, and delivered corporate education programmes to 1000 reputable local and multinational companies. The majority of them are large multinationals such as Mercedes-Benz, Microsoft, Coca-Cola, Barclays, and Samsung, to name a few.

Regenesys alumni occupy top leadership positions in multinational corporations and government institutions all over the world, and form a very influential alumni network that supports its members with business opportunities across the world.

Get inspired, energised, and transform your career with programmes grounded in the realities of the new digital world. I wish you success on your journey towards greatness.

Transforming Businesses: Our Alumni Impact

And 1000+ Organisations

Course Overview

The Cloud Computing & DevOps with AI Integration programme is designed to prepare you for the future of IT, where cloud computing, automation, and artificial intelligence (AI) are transforming how businesses operate. Whether you're looking to start a career in cloud and DevOps or advance your existing skills, this programme will place you at the forefront of technological innovation.

Cloud computing market to grow
From $680B to $1.44 Trillion by 2029
Source : Mordor Intelligence

9 Certificates
from Digital Regenesys

DevOps is one of the Top paying
Most in Demand Skill
in technology
Source : Robert Half

Gen AI Infused Programme
to become 10x cloud engineer

100K+ Jobs Worldwide
growing over 15% every year

Hands-on Labs
and exercises

Job Roles

- System Administrator
- Cloud Engineer
- Cloud Administrator
- DevOps Engineer
- Cloud AI Engineer
- Site Reliability Engineer
- Cloud Architect

Career Path

Average Salary Per Year

R283K – R402K — Junior Cloud/ DevOps Engineer

R402K – R710K — Cloud/ DevOps Engineer

R710K – R780K — Senior Cloud/ DevOps Engineer

R780K – R1100K — Cloud Architect / Lead DevOps Engineer

R1100K – R1300K — Director of Cloud/ DevOps
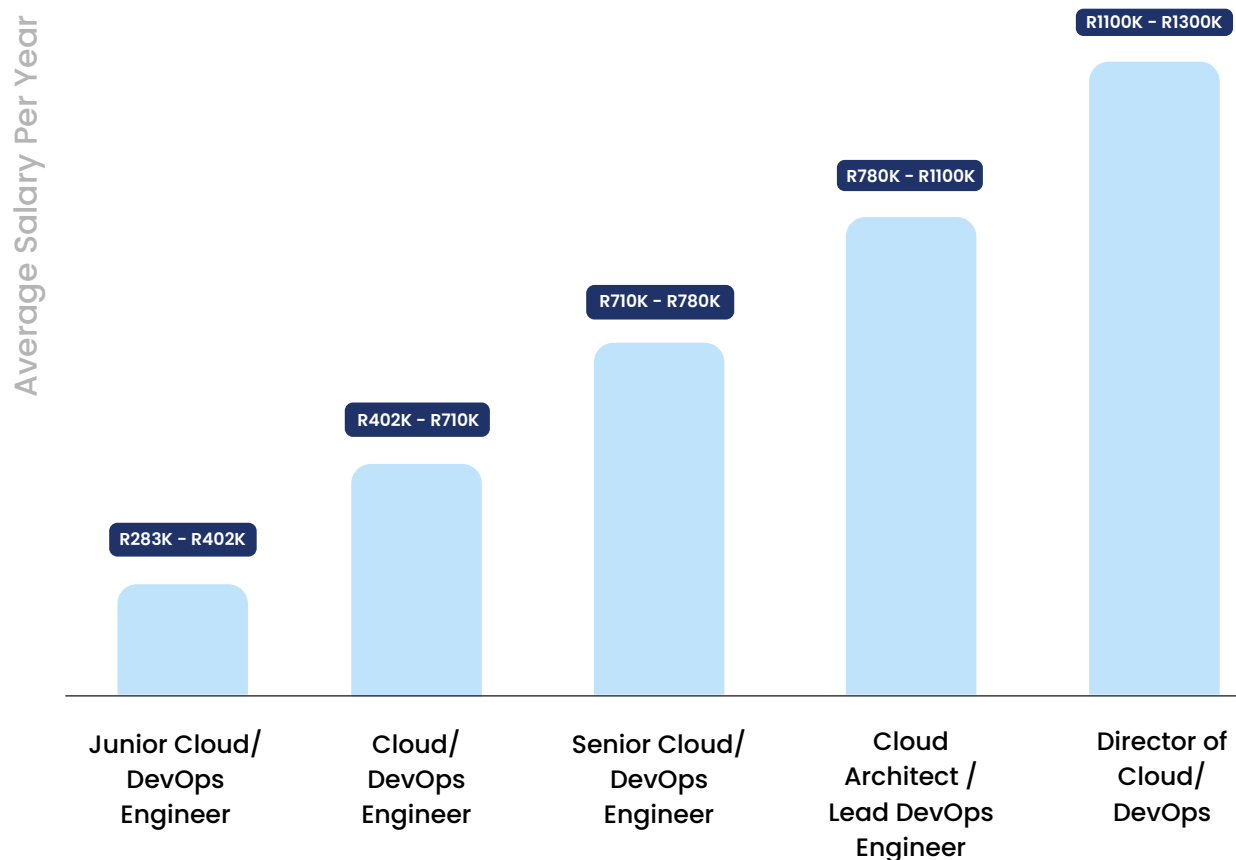
Note: These figures are indicative and sourced from Payscale, specific to South Africa.

Certification Alignment

**AWS Certified
Cloud Practitioner
(CLF-C02)**

**AWS Certified
Developer - Associate
(DVA-C02)**

**AWS Certified
DevOps Engineer -
Professional Exam**

**AWS Certified
AI Practitioner**

**AZ-900:
Microsoft Azure
Fundamentals**

**Google Cloud
Fundamentals**

**Docker Certified
Associate**

**Certified Kubernetes
Administrator (CKA)**

Terraform Associate

Cloud Foundations and Essentials

✔ 4 hours/week (2 Sessions) ✔ Expert Led sessions ✔ Lab sessions

In-Depth Overview

Aligned to **AWS Certified Cloud Practitioner** and

Azure Fundamentals AZ-900

Introduction to Cloud Computing :

- Overview of cloud computing concepts and history.
- Importance of cloud computing in modern IT.
- Introduction to major cloud providers (AWS, Azure, GCP).

Cloud Service Models & AI in Cloud :

- Cloud service models: IaaS, PaaS, SaaS.
- Overview of AI in the cloud (e.g., ChatGPT using cloud infrastructure).
- Practical examples of AI integration in cloud services.

Introduction to Networking in the Cloud :

- Basics of cloud networking: IP addresses, DNS.
- Introduction to Load Balancing.
- Understanding Virtual Private Clouds (VPCs).

Cloud Economics and Billing :

- Understanding cloud pricing models and billing.
- Cost management strategies.
- Introduction to cloud cost calculators.

Cloud Storage Solutions :

- Understanding cloud storage types: Object, Block, File.
- Overview of storage solutions on AWS, Azure, and GCP.
- Managing and creating cloud storage solutions.

Security Fundamentals in Cloud Computing :

- Introduction to cloud security principles.
- Understanding the Shared Responsibility Model.
- Introduction to Identity and Access Management (IAM).

Google Cloud Platform (GCP), Azure, and AWS

Fundamentals of AWS

- ✔ Introduction to AWS platform.
- ✔ Key AWS services: EC2, S3, RDS, VPC.
- ✔ Overview of AWS global infrastructure.

AWS Certified Cloud Practitioner (CLF-C02)

AWS Certified Developer - Associate (DVA-C02)

Fundamentals of Azure

- ✔ Introduction to Azure platform.
- ✔ Key Azure services: VMs, Blob Storage, SQL Database, VNet.
- ✔ Overview of Azure global infrastructure.

AZ-900: Microsoft Azure Fundamentals

Fundamentals of GCP

- ✔ Introduction to GCP platform.
- ✔ Key GCP services: Compute Engine, Cloud Storage, Cloud SQL, VPC.
- ✔ Overview of GCP global infrastructure.

Google Clould Fundamentals

Lab Sessions

IAM on AWS

- Set up IAM roles and policies on AWS.
- Assign roles to users and resources.
- Understand how IAM integrates with AWS services.

Networking in the Cloud

- Set up DNS and load balancers on AWS.
- Configure a Virtual Private Cloud (VPC) on AWS.
- Gain hands-on experience by replicating similar network configurations on Azure.

Storage on AWS

- Create and configure an AWS S3 bucket.
- Attach an Elastic Block Store (EBS) volume to an EC2 instance.
- Make files publicly accessible via a URL.

Azure

- Set up your Azure free account.
- Discover and explore key Azure services.
- Deploy a simple web application on Azure.

Storage on Azure

- Create and configure an Azure Blob Storage container.
- Attach a Managed Disk to a Virtual Machine (VM).
- Easily make files publicly accessible.

GCP

- Set up your Google Cloud account.
- Deploy a Linux-based Compute Engine VM.
- Deploy a simple web application on Compute Engine.

Expert Led Sessions

Expert Session 1 –
Cloud Computing Best Practices

- Structure of the cloud computing programme.
- Practical applications in cloud computing.
- Breakdown of real-world cloud computing scenarios.

Expert Session 2 –
Emerging Cloud Computing Strategies

- Real-life examples of cloud implementation.
- Expert insights into cloud instrumentation.
- Discussion on emerging trends in cloud computing.

Tools Covered

AWS Tools:

Amazon Aws EC2	Amazon S3	Amazon EBS	Amazon VPC
Amazon Route53	Amazon Load Balancers	Amazon IAM	Amazon Cost Calculator

Azure Tools:

Azure Virtual Machine	Azure Managed Disks	Azure Storage - Blob
Azure VNet	Azure IAM	Azure Storage - Blob

GCP Tools :
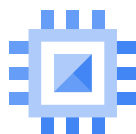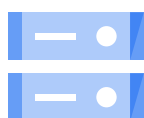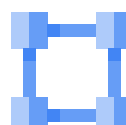
Compute Engine	Cloud Storage	Cloud SQL	Virtual Private Cloud	Cloud DNS

CODE

SEC

DEV

OPS

Feedback

Advanced Cloud Engineering & DevOps

✓ 6 hours/week (2 Sessions)   ✓ Expert Led sessions   ✓ Lab sessions

✓ Capstone Projects

Advanced Cloud Engineering and DevOps

Introduction to DevOps & Linux :

- ✅ What is DevOps?
- ✅ History and evolution of DevOps.
- ✅ Importance of DevOps in modern software development.
- ✅ Key DevOps practices and principles, including real-world use cases.
- ✅ Basics of the Linux operating system.
- ✅ Understanding the Linux file system and command line.

Linux Commands, Shell Scripting & Programming Basics :

- ✅ Learn essential Linux commands.
- ✅ Understanding file permissions and ownership.
- ✅ Introduction to shell scripting for automation.
- ✅ What are programming languages?
- ✅ Fundamentals of programming concepts (variables, data types, logic).
- ✅ Writing simple programmes.

Python Basics: Setup, Data Types & Control Structures

- ✅ Introduction to Python and its uses.
- ✅ Set up your Python environment and install IDEs.
- ✅ Write your first Python programme, "Hello, World!"
- ✅ Learn about different data types: integers, floats, strings, and booleans.
- ✅ Work with variables and assignments.
- ✅ Perform basic operations with numbers and strings.
- ✅ Learn about if, elif, and else statements.
- ✅ Use logical operators like and, or, and not.
- ✅ Write decision-making programmes using conditionals.

Loops, Functions & Data Structures in Python :

- ✅ Introduction to for and while loops.
- ✅ Use loops to iterate over lists and strings.
- ✅ Work with nested loops for more complex tasks.
- ✅ Learn to define and call functions.
- ✅ Understand parameters, return values, and importing modules.
- ✅ Introduction to lists, tuples, and dictionaries.
- ✅ Access, modify, and iterate through data structures.

Version Control with Git & GitHub :

- ✅ Master Git fundamentals.
- ✅ Set up a simple local Git project to practice these skills.
- ✅ Learn how to collaborate with Github.

CI/CD Pipelines with Jenkins and AWS CodePipeline :

- ✅ Discover the principles of Continuous Integration and Continuous Deployment (CI/CD).
- ✅ Learn to set up automated CI/CD pipelines using Jenkins and AWS CodePipeline.
- ✅ Understand how CI/CD helps in automating and speeding up the software release process.

Containerisation with Docker & Kubernetes :

- ✅ Learn the fundamentals of containers and Docker, including security and networking.
- ✅ Explore Kubernetes for managing and scaling applications, and troubleshoot clusters.
- ✅ Deploy containerised applications on AWS, integrating Docker and Kubernetes for seamless management and trouble-shooting.

Infrastructure as Code (IaC) with Terraform & Ansible :

- ✓ Master cloud automation with Terraform, from scripting AWS resources to seamlessly migrating and managing existing infrastructures.
- ✓ Unlock the power of Infrastructure as Code (IaC) to drive reusability and streamline cloud setup processes.
- ✓ Gain real-world experience by automating and efficiently managing cloud environments using Terraform's advanced capabilities.
- ✓ Explore Ansible for automating configuration management and application deployment.
- ✓ Learn to write Ansible playbooks for automating tasks across multiple servers.
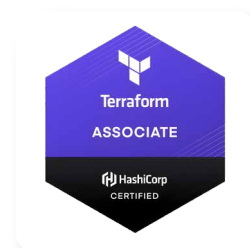
AIOps and AI in DevOps :

- ✓ Learn about the role of AI in DevOps.
- ✓ Understand the concept of AIOps and how machine learning can enhance DevOps practices.
- ✓ Explore real-world use cases of AI in monitoring, alerting, and predictive analytics.
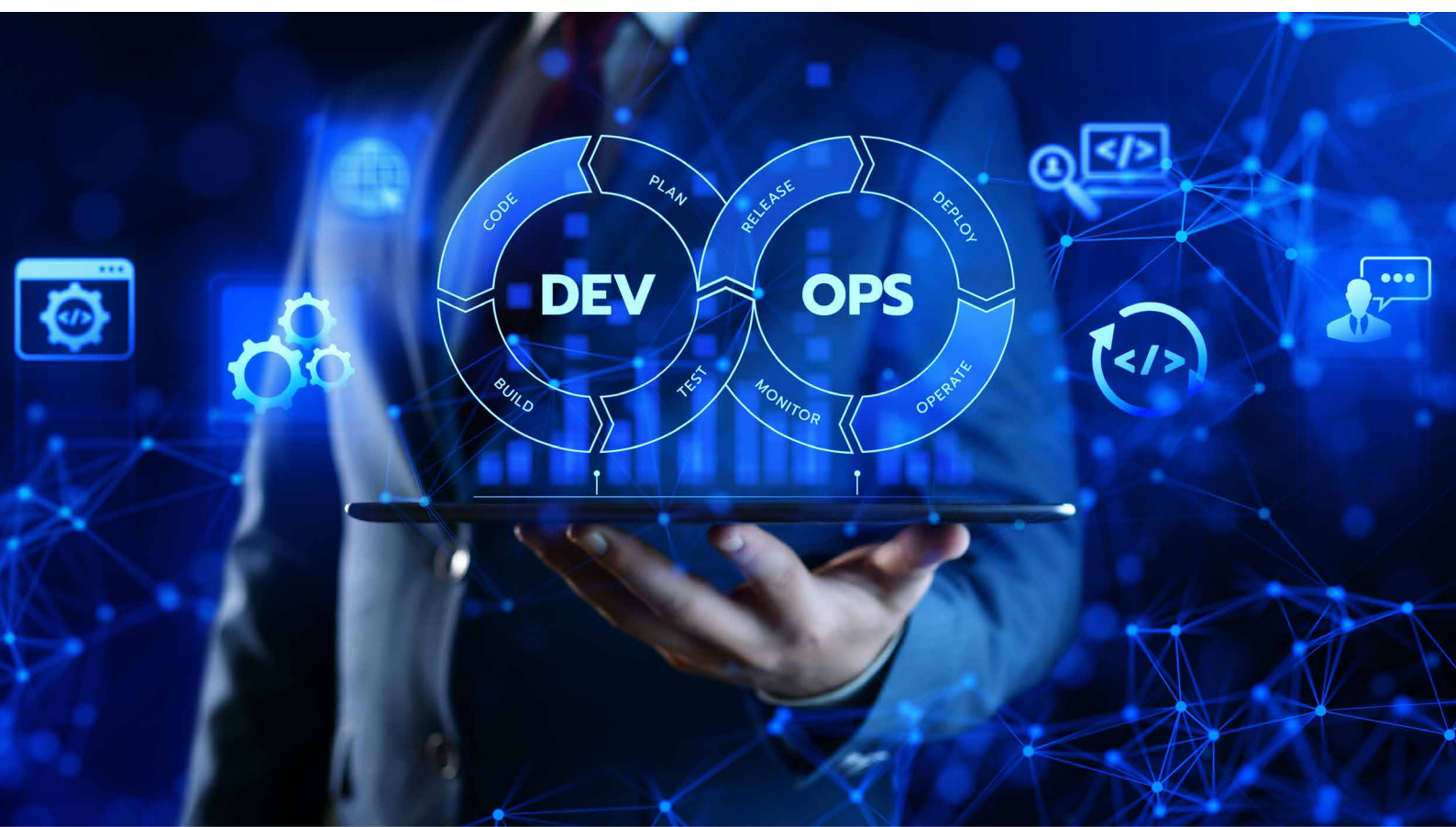
Expert Led Session

Expert-Led Session on DevOps Use Cases and Success Stories :

- ✓ Discussion on real-world use cases and success stories related to DevOps practices and principles.

Lab Sessions

Python Setup & Basics

- ✓ Set up a Python development environment.
- ✓ Write your first Python programme.
- ✓ Perform operations with different data types and variables in Python.

Control Structures, Loops & Data Structures

- ✓ Write decision-making programmes using conditionals.
- ✓ Master the use of loops to efficiently iterate over data structures like lists and strings.
- ✓ Manipulate and iterate through lists, tuples, and dictionaries.

Functions, Modules & Advanced Data Handling in Python

- ✓ Define and call functions, and work with Python modules.
- ✓ Practice using advanced data structures like lists, tuples, and dictionaries.

Git & Version Control

- ✓ Set up a simple local Git project to practice version control.
- ✓ Push, pull, and manage changes using Git.
- ✓ Learn how to share your projects via GitHub and use pull requests for collaboration.

Docker and Kubernetes

- Deploy containerised applications on AWS using Docker.
- Use Kubernetes for orchestration to manage and scale containers.

Infrastructure as Code with Terraform & Ansible

- Use Terraform to automate the creation and management of AWS infrastructure.
- Write and run Ansible playbooks to automate configuration and server management tasks.

Implementing AI in DevOps

- Set up AI-driven monitoring and alerting systems.
- Use AI to automate complex tasks and improve operational efficiency.

Capstone Projects

Full DevOps Pipeline with AI Integration - Part 1

- Design and implement a comprehensive DevOps pipeline that includes version control, CI/CD, containerisation, orchestration, IaC, and AI-driven monitoring.

Full DevOps Pipeline with AI Integration - Part 2

- Continue working on the pipeline, finalising deployment, and integrating AI tools to automate and enhance the pipeline.

Tools Covered

AI & Machine Learning for Cloud Professionals

✓ 4 hours/week (2 Sessions)   ✓ Expert Led sessions   ✓ Lab sessions

AI & Machine Learning for Cloud Professionals

Introduction to AI/ML and AWS :

- ✓ Overview of AI and Machine Learning (ML) concepts.
- ✓ The role of AWS in AI/ML.
- ✓ Introduction to AWS AI/ML services with Amazon SageMaker, AWS Comprehend, and AWS Rekognition.

Training and Deploying AI Models on AWS :

- ✓ Train models with Amazon SageMaker, including hyperparameter tuning using SageMaker Automatic Model Tuning.
- ✓ Perform distributed training using SageMaker and EC2 instances.
- ✓ Explore model deployment strategies with SageMaker.
- ✓ Use AWS services like SageMaker Endpoint and CloudWatch for deployment, monitoring, and A/B testing.
- ✓ Manage and update deployed models on AWS.

Data Preparation and Feature Engineering in AWS :

- ✓ Data collection, cleaning, and preprocessing using AWS services (e.g., AWS Glue, AWS Data Pipeline).
- ✓ Data management in AWS and best practices.

End-to-End AI Model Deployment on AWS :

- ✓ Build, train, and deploy an AI model using AWS services (SageMaker, S3, Lambda).
- ✓ Set up an end-to-end pipeline from data collection to deployment.

MLOps with AWS :

- Introduction to MLOps using AWS.
- Integrating AI models into CI/CD pipelines with AWS CodePipeline, SageMaker, and Lambda.
- Monitoring and managing AI models post-deployment using AWS tools like CloudWatch and SageMaker Model Monitor.

Leveraging Generative AI to Become a 10x Cloud Engineer :

- Introduction to Generative AI in Cloud Engineering. Overview of popular GenAI tools and platforms (e.g., AWS CodeWhisperer, OpenAI Codex).
- GenAI for Automation and Optimisation.
- Enhanced problem-solving with GenAI (diagnosis, troubleshooting).

Expert Session

Expert Session on AI/ML

- Insights and real-world examples from industry experts on AI/ML in the cloud.

   Learning Outcome: Understand best practices and emerging trends in cloud-based AI/ML.

Lab Sessions

Data Preparation and Feature Engineering on AWS

- ✔ Perform data collection, cleaning, and preprocessing using AWS tools (e.g., AWS Glue, AWS Data Pipeline).
- ✔ Apply best practices for data management in AWS.

Training AI Models on AWS

- ✔ Train AI models using Amazon SageMaker.
- ✔ Perform hyperparameter tuning and optimisation using SageMaker Automatic Model Tuning.
- ✔ Apply distributed training using SageMaker and EC2 instances.

Deploying and Managing AI Models on AWS

- ✔ Deploy AI models using Amazon SageMaker.
- ✔ Monitor and manage deployed models using CloudWatch and SageMaker Model Monitor.
- ✔ Set up A/B testing with SageMaker Endpoint.

End-to-End AI Model Deployment

- ✔ Build, train, and deploy an AI model using AWS services (SageMaker, S3, Lambda).
- ✔ Set up an end-to-end AI model pipeline from data collection to deployment.

MLOps with AWS

- ✔ Integrate AI models into a CI/CD pipeline using AWS CodePipeline, SageMaker, and Lambda.
- ✔ Monitor AI models post-deployment using AWS tools like CloudWatch and SageMaker Model Monitor.

Leveraging Generative AI for Cloud Engineering

- ✔ Explore GenAI tools like AWS Code-Whisperer and OpenAI Codex.
- ✔ Use GenAI for cloud automation, optimisation, and problem-solving (diagnosis, troubleshooting).

Tools Covered

Amazon SageMaker
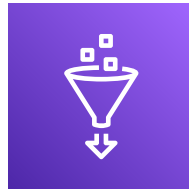
AWS Glue

AWS Data Pipeline

AWS Comprehend

AWS Rekognition

AWS S3

AWS Lambda
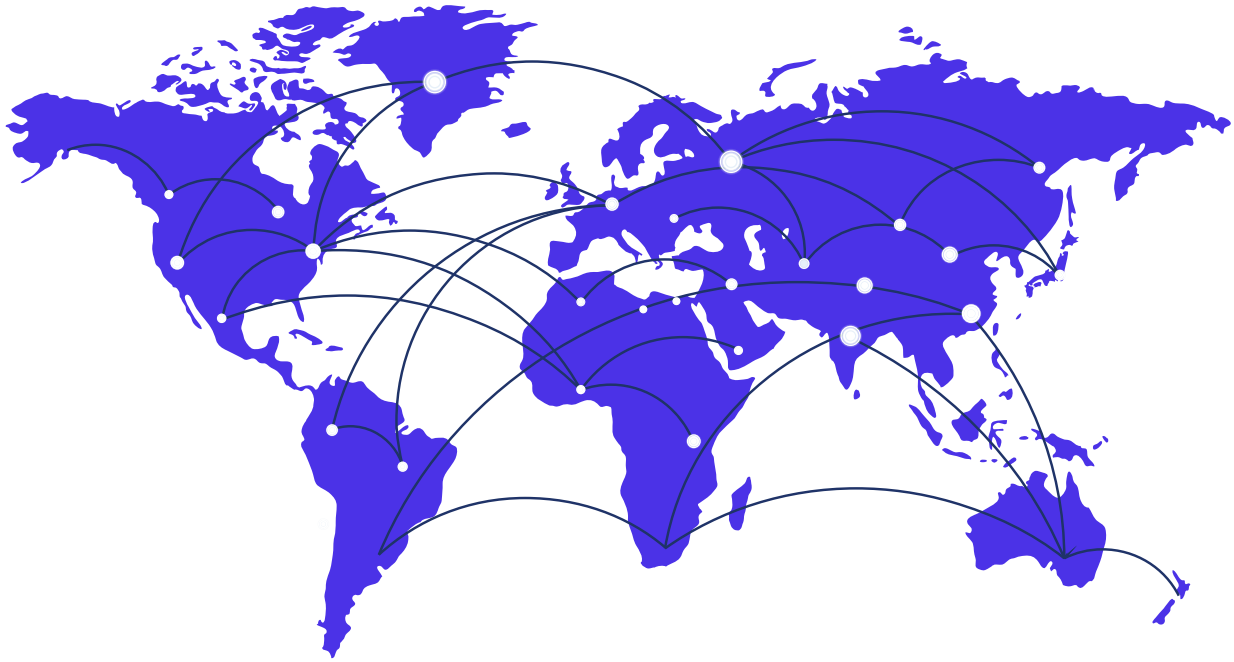
AWS CloudWatch

AWS CodePipeline

AWS CodeWhisperer

Course Duration :
8 Months

Connect With Us »

Our Global Network

We Have Students Thriving in Over 180 countries, Supported By Our Offices In Six Key Locations Worldwide!

Contact Us

SOUTH AFRICA:
165 West Street, Sandton Johannesburg, South Africa

KENYA:
1203, 12th Floor, GTC Office Tower Intersection of Waiyaki Way, Chiromo Ln, Nairobi, Kenya

TANZANIA:
G11 Ground Floor, Kwik Spaces, 1040 Haile Selassie Road, Masaki Dar es Salaam, 16572

NIGERIA:
8th Floor, Churchgate Tower 2 PC 31, Victoria Island, Lagos, Nigeria.

INDIA:
Proxima Building, Unit 1101, 11th Floor, Plot 19, Sector 30A, Vashi, Navi Mumbai, India. 400705

UGANDA:
Arie Tower, 6th Floor, 16 Mackinnon Rd, Kampala, Uganda

⊕ www.digitalregenesys.com

⊚ @digital_regenesys   🅕 @digitalregenesys   🅛 @digital-regenesys