

Diploma in DevOps and Cloud Advancement

EduQual Level 4 Endorsed Diploma

Learner Handbook
AL NAFI INTERNATIONAL COLLEGE
<https://alnafi.com>

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1. About the Diploma

The Diploma in DevOps and Cloud Advancement is an EduQual endorsed qualification aimed to equip students with practical skills and knowledge relevant to DevOps, cloud computing, and cybersecurity positions and duties. The diploma covers topics such as Linux and RHEL system administration, Python programming, Docker, Kubernetes (including KCNA, CKAD, CKA, CKS, and KCSA certifications), Ansible, Bash scripting, Vagrant, Flask, Selenium, Jira automation, and Python automation. We offer immersive learning experiences through our Amazon Web Services (AWS) cloud computing labs and container labs, which concentrate on real-world scenarios. A distinctive feature of the program is the integration of Artificial Intelligence across all modules, enabling students to leverage AI for system administration, threat detection, code review, and predictive monitoring.

Our course material is designed to acquaint learners with various viewpoints on emerging technologies. The diploma aims to improve students' understanding of technical elements, including system design, development, deployment, maintenance, and problem-solving while promoting collaboration between development and operations teams. To prepare learners for a job, we provide customised labs, resume development, LinkedIn profile optimization, IELTS preparation, and job training. Graduates of this diploma can pursue careers such as DevOps engineers, cloud architects, Kubernetes administrators, security specialists, system administrators, and automation engineers within 3-6 months, enabling national or international job opportunities.

This Diploma is supplemented with the six units of the Diploma in Cloud Cyber Security, enabling learners to develop a more comprehensive understanding of emerging sciences and increase their employability with diversified knowledge.

Focusing on employability, the course uses open-source, vendor-agnostic content and provides students with recorded videos, hands-on practice, custom cloud labs, and assignments. Hands-on practice includes step-by-step guidance and interaction with trainers via communities, forums, and live classes.

2. Key Features of the Diploma

- EduQual endorsement, a globally recognised qualification.
- Nearly 1900 hours of hands-on cloud labs integrated across all units
- Delivered through Self-paced online and distance learning..
- Job description-led learning aligned with industry roles
- 8X higher live interaction through live online classes conducted by industry experts
- Vibrant student communities for peer support and networking
- Professional resume building and Internship programme eligibility services through Al Razzaq Program
- Undergraduate programme progression pathways
- Gain full expertise in Cloud Environments with Cloud Playground's on-demand servers and specialised containers for every lab scenario

3. About the Diploma Program Endorsed by EduQual

The DevOps and Cloud Advancement Diploma, endorsed by EduQual, holds significant value for those seeking careers in cloud computing and DevOps. As a globally recognized awarding organization, EduQual provides top-tier qualifications that are widely respected by employers and academic institutions worldwide. The endorsement of the DevOps and Cloud Development Diploma demonstrates the program's commitment to upholding high-quality standards and providing students with comprehensive training in cloud computing. This diploma is an excellent option for individuals looking to improve their DevOps methodologies and cloud computing abilities while enhancing their career opportunities in this rapidly changing sector. Moreover, since the diploma corresponds to Level 4 of the Regulated Qualifications Framework (RQF), graduates may be eligible for a first-year exemption in an undergraduate program upon successful completion of the course.

Upon completion of this diploma program, students will:

- Receive one Certificate and one transcript of EduQual diploma after completion of the program.
- Eligible for Al Nafi Alumni membership and admission in second year Bachelor's Degree programs
- Apply for jobs based upon the skills of the student does not want to take admission

4. About Al Nafi International College

Al Nafi International College, the leading global e-Learning platform, offers rigorous and specialized training in emerging technologies and processes shaping the digital landscape. With a cost-effective, self-paced learning and time-efficient approach, we have served more than 300,000 learners, with numerous alumni excelling in Fortune 500 companies worldwide. Our diploma programs are designed to help both students, professionals and organizations achieve their career and business objectives

5. Program Eligibility Criteria and Application Process

To apply for the Diploma in DevOps and Cloud Advancement at Eduqual Level 4, individuals who are interested will need to register for the diploma through the website. The provided link <https://alnafi.com/courses/diploma-in-devops-and-cloud> can be used by learners to complete their application.

To enrol in this diploma, individuals just need to have studied up to at least grade 12, or hold a Level 3 qualification – for example Intermediate, A Level, IB diploma, a Pearson BTEC Level 3, or any equivalent qualification.

5.1. Eligibility Criteria

To enrol in this diploma, individuals just need to have studied up to at least grade 12, or hold a Level 3 qualification – for example Intermediate, A Level, IB diploma, a Pearson BTEC Level 3, or any equivalent qualification. In addition, all learners must possess the following:

- A laptop with an average specification or desktop computer that is in good working order.
- A dependable internet connection.
- Proficiency in using the internet and the ability to troubleshoot internet-related issues.

5.2. Application Process

After selecting the preferred payment plan, learners can begin their studies with ease as the application process comprises only three straightforward steps.

STEP 1

CHOOSE THE PAYMENT PLAN AND TYPE

Fill out the application form and choose your preferred payment plan, which includes options for monthly, quarterly, half-yearly, and annual payments.

STEP 2

SUBMIT THE APPLICATION PROCESS

With just one click, submit your application once you have chosen the payment method and plan.

STEP 3

COMPLETE KYS VERIFICATION

After payment, complete the KYS form and upload your previous qualification documents for verification. Course access will only be provided after the KYS verification process is completed successfully.

STEP 4

ADMISSION

Once your KYS have been completed and verified, immediately begin your studies. Access to the student portal might take 24 to 48 hours to verify. If there are issues in accessing the Al Nafi student portal then learners should connect with support through call, message on the number given on the website. Or either through email at support@alnafi.com

6. Connect with the Support Operations Center

Our dedicated support team is here to assist you with any questions or concerns you may have regarding the application process and related matters, 24/7. They can help you with inquiries regarding

- the application.
- provide information on the course and labs and assessments.
- Guide about job aspects
- Guide about admission by using this diploma.
- clarify any confusion you have about the diploma program.

7. Program Outcomes

- Analyze Docker components, integrate Docker with DevOps tools, and design automated configuration management and deployment strategies. (DevOps Docker Deep Dive)
- Demonstrate proficiency in writing and executing Bash scripts, utilize various Bash utilities and tools, and apply file and directory manipulation techniques. (Bash Script Deep Dive)
- Design and implement infrastructure automation solutions using Ansible Playbooks and Modules. (Ansible Deep Dive)
- Utilize Python to automate JIRA workflows, manage JIRA components, and analyze JIRA fundamentals. (JIRA with Python)
- Deploy, manage, and troubleshoot Kubernetes clusters by applying hands-on configuration and operational skills. (Kubernetes Administrator)
- Deploy, manage, and scale cloud-native applications using Kubernetes and cloud technologies, and implement monitoring and observability practices. (Kubernetes and Cloud Native Associates)
- Utilize and configure essential Kubernetes features, including pods, services, replica sets, and secrets, to design application deployments. (Kubernetes Application Developer)
- Implement security best practices for Kubernetes clusters, evaluate security risks, and address security challenges through systematic hardening. (Kubernetes Security Specialist)
- Design and implement Python automation scripts for file operations, data processing, web scraping, and solve complex real-world problems. (Python Automation Deep Dive)
- Design web automation solutions using Python Selenium, implement Selenium WebDriver scripts, and debug and troubleshoot automation scripts effectively. (Python Selenium)
- Utilize Vagrant to create and manage virtual development environments, automate infrastructure provisioning, and streamline development workflows. (Vagrant)
- Analyze Linux fundamentals, design system administration strategies, configure networking and security, and implement advanced configuration techniques. (Linux Deep Dive)
- Design Python solutions from basic syntax to advanced concepts, utilize OOP and data structures, develop web applications, and leverage AI tools for code optimization. (Python Deep Dive)
- Analyze Red Hat Enterprise Linux systems, implement system administration practices, apply security hardening techniques, and utilize Ansible for automation. (Red Hat Enterprise Linux)
- Design a professional LinkedIn presence, apply personal branding strategies, implement effective networking techniques, and evaluate job search opportunities in the emerging technology sector. (LinkedIn Course for Job Seekers)
- Analyze and apply reading, writing, listening, and speaking skills to achieve a high band score in the IELTS examination for academic and professional purposes. (IELTS Training)

- Analyze cloud-native security principles, evaluate Kubernetes component security, and apply compliance frameworks to secure containerized environments. (Kubernetes and Cloud Native Security Associate)
- Design and develop web applications and RESTful APIs using Flask, integrate databases, implement authentication, and apply deployment strategies. (Python Flask)

8. Who Should Enroll in this Program?

This DevOps diploma is designed for:

- School, College and university students looking to gain admissions in second year of Bachelor's degree globally and expand their knowledge, skills, and career opportunities as well.
- Individuals looking to learn job based skills and secure employment globally.
- Professionals in the industry who want to enhance their skills and advance their careers

This diploma program is suitable for individuals between the ages of 16 and 45 who are self-motivated and capable of studying independently. The diverse student body, composed of individuals from various industries and backgrounds, enriches class discussions and interactions.

The diploma prepares individuals for careers such as:

- Docker Administrator, Automation Engineer, Deployment Engineer
- DevOps Engineer, Automation Engineer, System Administrator
- Ansible Engineer, Automation Engineer, Infrastructure Engineer
- JIRA Administrator, Python Developer
- Kubernetes Administrator, Cloud Engineer, Deployment Engineer
- Kubernetes Developer, Cloud Engineer, Application Developer
- Kubernetes Security Engineer, Security Specialist, DevSecOps Engineer
- Python Developer, Automation Engineer, Data Analyst
- Selenium Automation Engineer, Software Developer, Web Application Developer
- DevOps Engineer, System Administrator
- Cybersecurity Analyst, Security Operations Center (SOC) Analyst
- Data Analyst, Data Scientist, Machine Learning Engineer
- SOC Engineer, Security Operations Center (SOC) Analyst
- Threat Hunting Engineer, Security Operations Center (SOC) Analyst
- Ethical Hacker, Incident Response Manager, Security Analyst
- Information Security Manager, Security Consultant, Security Auditor
- Data Analyst, Data Scientist, Machine Learning Engineer
- Data Analyst, Data Scientist, Machine Learning Engineer
- Job seeker, Professional looking to improve their LinkedIn profile
- Linux Administrator, System Administrator, DevOps Engineer
- Network Security Analyst, Penetration Tester, Ethical Hacker
- PCI DSS Compliance Auditor, Security Consultant, Compliance Officer

- Data Analyst, Data Scientist, Machine Learning Engineer
- Python Developer, Data Analyst, App Developer, Machine Learning Engineer
- Data Analyst, Data Scientist, Machine Learning Engineer
- DevOps Engineer, Cloud Engineer, Application Developer
- SCADA Security Analyst, Incident Response Manager, Cybersecurity Consultant
- SIEM Engineer, Security Operations Center (SOC) Analyst
- Data Analyst, Data Scientist, Machine Learning Engineer
- Vulnerability Assessment Specialist, Penetration Tester, Security Consultant

9. Learning Path

1. Linux Deep Dive
2. Python Deep Dive
3. Red Hat Enterprise Linux (RHEL)
4. Certified Information System Security Professional (CISSP)
5. DevOps Docker Deep Dive
6. Bash Script Deep Dive
7. Python Automation
8. Python Selenium
9. Python Jira
10. Python Flask
11. Python Vagrant
12. Ansible Deep Dive
13. Kubernetes and Cloud Native Associate (KCNA)
14. Certified Kubernetes Application Developer (CKAD)
15. Certified Kubernetes Administrator (CKA)
16. Certified Kubernetes Security Specialist (CKS)
17. Kubernetes and Cloud Native Security Associate (KCSA)
18. LinkedIn Course for Job Seekers
19. IELTS Academic and General Training
20. Pass all MCQs and all AI Razzaq part 1 labs given for the diploma
21. Achieve a 6.5 band or more in IELTS for UKVI
22. Attain EduQual Certificate.

10. Assessment Information

Assessments are an essential component of any diploma course, and at our online and distance learning platform, we ensure that our students are evaluated thoroughly. This section outlines the assessment framework specifically designed for students who enroll in their EduQual diploma programs from July 2026 onwards.

10.1. Assessment Overview

Student assessments are designed to provide practical, skills-based learning experiences that reflect real- world vocational requirements across emerging technology domains.

Assessment Components

Assessment Component	Weightage	Passing Percentage Requirement
AI Razzaq Lab Assignments(part 1 only)	70%	Minimum 40%
Multiple Choice Questions (MCQs)	15%	Minimum 40%
English Language Exam	15%	Minimum IELTS 6.5 or Duolingo 115–120

Important: You must achieve a minimum of 40% in each of the AI Razzaq Lab Assignments(part 1) and MCQs exam to qualify for diploma completion. Students will have to pay for IELTS for UKVI on their own. The fee is not included in the diploma fee.

10.2. AI Razzaq Lab Assignments (70% weightage in overall Grade)

What Are They?

AI Razzaq Lab Assignments are practical, hands-on tasks divided into three phases:

Phase	Description
Basic Phase	Foundational tasks introducing core concepts and tools
Intermediate Phase	Integrated tasks requiring application of skills in scenario- based contexts
Advanced Phase	Complex, multi- step tasks simulating real- world problem- solving

These assignments are customized based on your chosen emerging technology domain (e.g., AIOps, DevSysOps, DevOps, SysOps, Cloud Advancement).

How Are They Graded?

- Assignments are submitted via the student portal.
- Graded using AI- augmented assessment tools.
- Students receive real- time feedback on their performance
- Final scores are recorded as a percentage

What If You Need to Resubmit?

Scenario	Process
First failure	You may resubmit once within 30 days of receiving your result
Second failure	You must repeat the unit with full attendance and reassessment of all phases
Lab access expires before completion	You must renew access as per the Course Access Policy
Lab assessments incomplete within two years	£100 reassessment fee applies

10.3. Multiple Choice Questions (15% of Your Grade)

Assessment Format

- Each MCQ carries 1 mark
- No negative marking for incorrect answers
- Questions include:
 - Knowledge- based
 - Scenario- based
 - Job- based
 - Critical Thinking
 - Application- based

Attempts and Scoring

Feature	Detail
Attempts	Unlimited attempts within your program access period
Final Score	Average of all attempts that meet or exceed the passing grade

Passing Requirement	Minimum 40%
Requirement	You must pass each individual assessment bank (20 MCQs each)

Diploma Program Access Period

Diploma Level	Access Period
EduQual Level 3 & 4	12 months (in total)
EduQual Level 5	15 months (in total)
EduQual Level 6	18 months (in total)

Note: If you fail to complete all MCQ assessments within your program access period, you must renew access as per the Course Access Policy.

10.4. English Language Exam (15% of Your Grade)

Mandatory Requirement

You must appear for IELTS for UKVI and score a 6.5 band or more to complete the minimum requirements of the exam.

Submission Requirements

You must submit:

- Official score report (verified link or Test Report Form)
- Valid identification matching test records
- Test date (must be within 2 years)
- Registered email used for the test

All submissions must be uploaded via the Al Nafi Student Portal or verified directly through official providers.

Verification and Compliance

Al Nafi International College reserves the right to verify scores with official test providers. Non-compliance or falsification will result in academic disciplinary action and possible program suspension or termination.

Why Is This Required?

Submission of a valid English proficiency score is required for:

- Program completion and diploma issuance
- Participation in AI Razzaq Program (employment pathways)
- Eligibility for international university admissions or work based opportunities

If you do not meet the minimum requirement, you must retake the test until the required benchmark is achieved and participate in mandatory live classes of IELTS happening weekly.

10.5. AI Razzaq Labs Program Access

Prerequisites for Lab Access

Access to AI Razzaq Labs requires completion of:

1. Enrollment in an eligible EduQual diploma program (Levels 3 to 6)
2. Know Your Student (KYS) Form submission, capturing:
 - Academic background
 - Career goals
 - Geographic preferences
 - Industry focus
3. Engagement with the program as per your selected study plan (monthly, quarterly, annual)

Lab Components

Component	Description
Course-Linked Labs	Embedded and mandatory labs directly tied to your diploma coursework
KYS-Based Personalized Labs	Customized labs tailored to your individual career and skill profile

Additional Features and Support

Every learner will benefit from:

Feature	Description
AI-Driven Internship Guidance	Personalized internship recommendations and preparation

Resume Building	ATS scoring and career coaching
Interview Preparation	AI-powered voice interview practice (coming soon)
GitHub Integration	Portfolio building and code repository integration
Skill Certification Badges	Recognition of completed competencies
Global Career Forum	Access to networking and opportunities
University Admission Assistance	Support for university applications worldwide
Visa and Work Permit Support	Assistance for 70+ countries and G20 nations
Post-Employment Services	30, 60, and 90-day post-employment support
Job Placement	Placement assistance with Fortune 500 and global companies

10.6. Grading Criteria

Final grade is determined by applying the weightage of each assessment component to the scores a student achieves. Each component's score is multiplied by its respective weightage, and the results are summed to calculate your overall grade.

Grades are awarded based on absolute grading criteria, meaning the final grade depends solely on the performance against the predefined percentage thresholds, rather than being compared to other students.

Grade Boundaries

Grade	Percentage Range
A*	90% and above

A	80% – 89%
B	70% – 79%
C	60% – 69%
D	50% – 59%
U	Below 50%

Example Calculation

For a student:

Component	Score Achieved	Weightage	Weighted Score
Lab Assignments	75%	× 70%	= 52.5%
MCQs	60%	× 15%	= 9.0%
English Exam	65%	× 15%	= 9.75%
Final Grade			71.25%

A final score of 71.25% would correspond to a Grade B.

IELTS Band Score to Percentage Conversion

The IELTS test does not have a direct, official percentage conversion. However, for the purpose of diploma, the minimum requirement is Band 6.5, and any score above 6.5 is considered as meeting and exceeding the requirement.

What Does a Band 7 Mean?

A Band 7 indicates a student is a “Good User” of English. According to IELTS:

“You have an operational command of the language, though with occasional inaccuracies, inappropriacies and misunderstandings in some situations. You generally handle complex language well and understand detailed reasoning.”

How Is Band 7 Treated for Diploma?

For English Language Exam component (15% of overall grade), the scoring works as follows:

IELTS Band	Status	Percentage Equivalent (for grading purposes)
Below 6.5	Fail	0% – Does not meet the minimum requirement
6.5	Pass (Minimum)	50%
7.0	Pass (Good)	Approximately 75%
7.5	Pass (Very Good)	Approximately 85%
8.0+	Pass (Excellent)	100%

How English Score Affects Final Grade

Since the English Exam contributes 15% to overall grade, here is how a Band 7 ($\approx 75\%$) contributes:

Component	Student Score	Weightage	Weighted Contribution
English Exam	75%	$\times 15\%$	$= 11.25\%$ (out of 15%)

Example: Overall Grade Calculation

Component	Your Score	Weightage	Weighted Score
Lab Assignments	70%	$\times 70\%$	$= 49.00\%$
MCQs	60%	$\times 15\%$	$= 9.00\%$
English Exam	75% (Band 7)	$\times 15\%$	$= 11.25\%$

Final Grade	C		69.25%
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A final score of 69.25% would correspond to a Grade C.

Quick Reference Table

IELTS Band	Interpretation	Approx. Percentage	Weighted Contribution (15%)
6.5	Minimum Pass	50%	7.5%
7.0	Good User	75%	11.25%
7.5	Very Good User	85%	12.75%
8.0+	Excellent User	100%	15.00%

Note: The percentage equivalents above are used only for the purpose of calculating your overall diploma grade. They do not represent an official IELTS percentage conversion, as IELTS does not provide one. Any score of 6.5 or above satisfies the English proficiency requirement for your diploma.

10.7. Academic Integrity

To maintain academic integrity, the following practices are strictly prohibited:

Prohibited Practice	Description
Use of Automated Tools	Employing bots, scripts, or unauthorized software to answer MCQs or manipulate assessment platforms
Undisclosed AI-Generated Work	Passing off AI-created content as original work without proper acknowledgment or authorization
Unauthorized Assistance	Using prohibited tools, devices, or receiving help during practical exams

Violation Response

If suspected malpractice is detected:

1. Student will be formally informed in writing
2. A panel will review the evidence
3. Student will have the opportunity to respond
4. If confirmed, student may be banned from retaking the assessment and may be disqualified from the diploma program

10.8. Support for Students

The college provides comprehensive support to help students succeed:

Support Type	Description
Academic Integrity Workshops	Sessions on plagiarism prevention and ethical assessment practices
Counseling and Advising	Guidance on academic challenges and career planning
Detailed Feedback	Constructive feedback on assessments to guide improvement
AI Usage Guidance	Resources on responsible AI usage in academic work

Technical Support	Assistance with platform and technical issues via live chat or email
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10.9. Accessibility and Reasonable Adjustments

The college is committed to ensuring equal access to assessments. If students have documented disabilities or special needs, they may request reasonable adjustments, including:

- Extra time
- Alternative formats
- Assistive technology
- Modified lab environments

Submit requests to: academics@alnafi.com

Timeline: At least 7 working days before the scheduled assessment with supporting documentation.

10.10. Appeals Process

If any student believes an assessment decision is unfair:

Step	Timeline	Action
Informal Review	Within 10 working days of receiving results	Contact academics@alnafi.com
Formal Appeal	Within 14 working days of informal response	Submit formal appeal with supporting evidence
Acknowledgment	Within 3 working days	Appeal is acknowledged and assigned for review
Final Decision	Within 15 working days	Impartial panel issues final written decision

Complete Course Units (19 Units)

Unit 1: Linux Deep Dive

Unit Objectives:

- Build comprehensive Linux system administration skills
- Master installation, configuration, and management
- Develop security, networking, and monitoring expertise
- Learn automation and high availability concepts

Unit Curriculum:

- Introduction and installation (virtual environment, custom partitions, hardening)
- Basic configuration (system architecture, commands, file systems, permissions)
- Bash shell scripting
- Package management with YUM/DNF
- Advanced Linux configuration (single-user mode, run levels, performance reporting)
- Linux networking (DHCP, static/dynamic IP, DNS, routing)
- Advanced disk management (partitions, LVM, file systems)
- Linux services (SSH, NFS, Samba, NTP, cron)
- Linux security (firewalld, iptables, rkhunter)
- Web, MySQL, and Squid server configuration
- High availability (bonding, teaming, failover, load balancing)
- Linux monitoring (Nagios, NRPE, Docker monitoring)
- AI-powered automation and optimization

Unit 2: Python Deep Dive

Unit Objectives:

- Build deep, professional Python programming skills
- Master OOP, data structures, and advanced features
- Develop web applications, APIs, and data solutions
- Implement testing, debugging, and best practices

Unit Curriculum:

- Introduction to Python environment and setup
- Basic syntax and operations
- Data structures (lists, tuples, dictionaries, sets, strings)
- Modules and packages
- Object-Oriented Programming (classes, inheritance, polymorphism)
- Advanced topics (decorators, generators, context managers)
- Working with data (CSV, JSON, databases, Pandas)
- Web development (Flask, Django, RESTful APIs)
- Testing and debugging (unit tests, TDD)
- Concurrency and parallelism (threading, multiprocessing, asyncio)
- Network programming (sockets, client-server)
- Advanced libraries and tools (regex, logging, argparse)
- Best practices and design patterns (PEP 8)
- Python 3.13 new features
- Capstone project

Unit 3: Certified Information Systems Security Professional (CISSP)

Unit Objectives:

- Prepare learners for the CISSP certification exam
- Master all domains of the CISSP Common Body of Knowledge
- Develop expertise in security governance, risk management, and operations
- Build comprehensive understanding of security technologies and practices

Unit Curriculum:

- Security governance through principles and policies
- Personnel security and risk management concepts
- Business continuity planning
- Laws, regulations, and compliance
- Protecting security of assets
- Cryptography and symmetric key algorithms
- PKI and cryptographic applications
- Security models, design, and capabilities
- Security vulnerabilities, threats, and countermeasures
- Physical security requirements
- Secure network architecture and components
- Secure communications and network attacks
- Managing identity and authentication
- Controlling and monitoring access
- Security assessment and testing
- Managing security operations
- Preventing and responding to incidents
- Disaster recovery planning
- Investigations and ethics
- Software development security
- Malicious code and application attacks

Unit 4: Red Hat Enterprise Linux (RHEL)

Unit Objectives:

- Install, configure, and manage Red Hat Enterprise Linux systems
- Implement security, networking, and storage solutions
- Master automation with Shell and Ansible
- Manage containers and virtualization

Unit Curriculum:

- RHEL 9 overview and architecture
- Installation and initial setup
- Linux fundamentals and shell
- Software management with DNF/YUM
- User and access control
- Storage and file systems
- Networking and remote access
- Security and SELinux

- Monitoring and performance
- Automation with Shell and Ansible
- Containers and Podman
- Virtualization and high availability

Unit 5: DevOps Docker Deep Dive

Unit Objectives:

- Analyze Docker components and containerization principles.
- Integrate Docker with DevOps tools and workflows.
- Design Docker images and manage container repositories.
- Implement container orchestration using Docker Swarm.
- Apply security best practices for Docker containers.

Unit Course:

- Module 1: Introduction – Security principles, threat landscape, security in CI/CD, containers, microservices.
- Module 2: Docker Fundamentals – Container environments, installation, architecture, managing containers.
- Module 3: Docker Images & Repositories – Building images, Dockerfiles, build process, registries, Docker Compose, volumes.
- Module 4: Docker Configuration Management – DevOps repositories, branching strategies, Git integration, excluding files, multi-stage builds.
- Module 5: Docker Orchestration – Orchestration concepts, Docker Swarm, Swarm vs Kubernetes.
- Module 6: DevOps & Docker – DevOps evolution, tools, Ansible integration.
- Module 7: Security & Docker – Security architecture, least privilege, content trust, network security, best practices.

Unit 6: Bash Script Deep Dive

Unit Objectives:

- Demonstrate proficiency in writing and executing Bash scripts.
- Utilize variables, conditionals, loops, functions, and arrays effectively.
- Apply text processing tools including grep, sed, and awk.
- Design automation scripts for system administration and maintenance tasks.
- Implement error handling, debugging, and security best practices.

Unit Course:

- Module 1: Introduction to Bash Scripting – What is Bash, understanding the shell, writing your first script.
- Module 2: Bash Scripting Fundamentals – Variables, conditional statements, loops.
- Module 3: Advanced Bash Scripting Techniques – Functions, arrays, input/output redirection.
- Module 4: Working with Files and Directories – File handling, directory management, file permissions.
- Module 5: Text Processing and Regular Expressions – grep, sed, awk, string manipulation.

- Module 6: Bash Scripting for System Administration – Automating system maintenance, process management.
- Module 7: Error Handling and Debugging – Error handling techniques, debugging, best practices.
- Module 8: Advanced Bash Techniques – API integration with curl, parallel execution, cron scheduling.
- Module 9: Best Practices – Security, maintainability, performance, collaboration.
- Module 10: Real-World Use Cases – Backup automation, deployment automation, monitoring and alerting.

Unit 7: Python Automation

Unit Objectives:

- Design Python automation scripts for file operations and data processing.
- Implement web scraping and browser automation solutions.
- Apply API automation for testing and interaction.
- Design cloud infrastructure automation and workflow automation solutions.
- Implement task scheduling, monitoring, and reporting systems.

Unit Course:

- Module 1: Introduction to Python for Automation – Overview, setup, Python scripting.
- Module 2: Automating System – System administration, process automation.
- Module 3: Automating Web Scraping – Introduction, data extraction and storage.
- Module 4: Automating Testing – Unit to integration testing, API testing, CI integration.
- Module 5: Automating Web Interactions – Browser automation with Selenium.
- Module 6: Automating API Interactions – Making and testing API requests.
- Module 7: Automating Cloud Infrastructure – Azure and GCP automation.
- Module 8: Task Scheduling and Workflow Automation – Cron scheduling, workflow automation, building pipelines.
- Module 9: Monitoring Automated Tasks – Monitoring, reporting, error handling.
- Module 10: Best Practices – Maintainable code, security, performance optimization.

Unit 8: Python Selenium

Unit Objectives:

- Design web automation solutions using Python Selenium.
- Implement Selenium WebDriver scripts for web element identification.
- Apply synchronization techniques and advanced user interactions.
- Analyze and debug automation scripts effectively.
- Utilize automation frameworks like Page Object Model (POM).

Unit Course:

- Module 1: Introduction – Introduction to Selenium, setting up WebDriver, AI-driven foundations.
- Module 2: Identification of Web Elements – Finding elements by ID, name, class, CSS, XPath, link text, tag name, AI-powered techniques.
- Module 3: Handling Multiple Web Elements – Locating multiple elements, find_elements_by_* methods, AI-driven scalable identification.

- Module 4: Synchronization in Selenium – Implicit waits, explicit waits, intelligent synchronization.
- Module 5: Advanced User Interaction Automation – Action Chains, click_and_hold, context_click, drag_and_drop, key_down, move_to_element, send_keys.
- Module 6: Advanced Selenium WebDriver Techniques – Special keys, handling alerts, cookies, navigation, assertions, optimization, debugging.
- Module 7: Automation Frameworks – Page Object Model (POM), browser automation, AI-enhanced frameworks.

Unit 9: Python Jira

Unit Objectives:

- Utilize Python to automate JIRA workflows and components.
- Manage JIRA issues, components, filters, and groups programmatically.
- Implement JIRA API integration for application properties and attachments.
- Design automation solutions for JIRA issue tracking and transitions.

Unit Course:

- Chapter 1: Introduction & Resource – Introduction, Cloud API, resource argument translation, AI-enhanced Jira client integration.
- Chapter 2: Jira Class – ResultList class, initialization, managing cookies, session initialization, handling 401 errors, processing requests, updating cookies.
- Chapter 3: Jira Integration – JIRA class, default options, version checking, base URLs, server management, finding issues, asynchronous operations.
- Chapter 4: Properties & Management – Application properties, application links management, attachments management.
- Chapter 5: Component Management – Components management, retrieving details, creating components, counting issues.
- Chapter 6: Filters Management & Issues – Filters management, favorite filters, creating filters, groups management, issues management, remote links, issue transitions.

Unit 10: Python Flask

Unit Objectives:

- Design and develop web applications using Flask framework.
- Implement routing, templating, and request/response handling.
- Integrate databases using SQLAlchemy and manage migrations.
- Apply authentication, authorization, and error handling.
- Implement testing, deployment, and advanced features like caching and WebSockets.

Unit Course:

- Module 1: Introduction to Flask – Overview, features, installation, first application, WSGI.
- Module 2: Flask Application Basics – Structure, development server, app/request context, debug mode.

- Module 3: Routing and URL Building – Defining routes, variables, url_for, HTTP methods.
- Module 4: Templates and Rendering – Jinja2, render_template, template inheritance, data passing.
- Module 5: Handling Requests and Responses – Request object, form data, cookies, sessions, custom responses.
- Module 6: Flask Extensions and Database Integration – SQLAlchemy, Migrate, WTFORMs.
- Module 7: Authentication and Authorization – Login/logout, Flask-Login, role-based access, error handling.
- Module 8: Advanced Topics – Blueprints, application factory, testing, deployment, Celery, caching, WebSockets, REST APIs.

Unit 11: Python Vagrant

Unit Objectives:

- Utilize Vagrant to create and manage virtual development environments.
- Design Vagrantfiles for single and multi-machine configurations.
- Implement provisioning using shell scripts and configuration management tools.
- Apply networking configurations for Vagrant environments.
- Integrate Vagrant into DevOps and CI/CD pipelines.

Unit Course:

- Module 1: Introduction to Vagrant – Definition, timeline, installation, CLI overview, use cases, DevOps landscape.
- Module 2: Vagrant Basics – Vagrantfile structure, setting up VMs, starting and managing VMs, SSH access.
- Module 3: Working with Vagrant Boxes – What are boxes, providers, creating custom boxes, managing on Vagrant Cloud, versioning.
- Module 4: Provisioning in Vagrant – What is provisioning, automating configurations, shell scripts, Ansible integration.
- Module 5: Networking in Vagrant – Private networking, public networking, port forwarding, bridged vs NAT, multi-machine networking.
- Module 6: Vagrant in DevOps & CI/CD – Integration with Jenkins, GitLab CI, GitHub Actions, testing across environments.
- Module 7: Vagrant Plugins – Introduction, installing plugins, commonly used plugins, multi-machine environments.
- Module 8: Troubleshooting and Best Practices – Resource management, optimizing provisioning, security best practices, Vagrant Cloud.

Unit 12: Ansible Deep Dive

Unit Objectives:

- Design and implement infrastructure automation solutions using Ansible.
- Utilize Ansible Playbooks, Ad-Hoc Commands, and Roles for configuration management.
- Apply variables, facts, conditional logic, and loops in automation scripts.
- Implement provisioning, networking, and cloud deployments using Ansible.
- Integrate Ansible with CI/CD pipelines and apply security best practices.

Unit Course:

- Module 1: Introduction to Ansible – Definition, purpose, benefits, architecture, YAML, environment configuration.sk
- Module 2: Ansible Basics for Developers – Playbooks, ad-hoc commands, variables, facts, conditional logic, inventory management.
- Module 3: Ansible for Administrators – Static vs dynamic inventory, managing users/packages/services, file management, Jinja2 templates, roles.
- Module 4: Advanced Ansible for Developers – Loops, conditions, handlers, multi-environment management, Ansible Vault, cloud provisioning.
- Module 5: Ansible Automation for Administrators – Network device configuration, database automation, Ansible Tower/AWX, collections, debugging and troubleshooting.
- Module 6: Ansible Advanced Concepts – Idempotent and scalable playbooks, Git integration, CI/CD, security and compliance, AWS automation.
- Module 7: Best Practices – Automating full stack deployments, CI/CD pipeline integration, real-world case studies.

Unit 13: Kubernetes and Cloud Native Associate (KCNA)

Unit Objectives:

- Analyze core Kubernetes fundamentals and its architecture.
- Design container orchestration solutions using service meshes and storage options.
- Evaluate cloud-native architecture principles and application delivery methods.
- Implement cloud-native observability using the three pillars.
- Apply GitOps and CI/CD practices in the cloud-native ecosystem.

Unit Course:

- Module 1: Kubernetes Fundamentals – Kubernetes introduction, components, core objects, containers, deployments, pods, networking, security, storage, API, scheduling, AI-enhanced resource management.
- Module 2: Container Orchestration – Introduction to orchestration, fundamentals, CRI-O runtime, security, networking, service mesh, storage, scaling, multi-cluster orchestration, AI-enhanced orchestration.

- Module 3: Cloud Native Architecture – Fundamentals, cloud-native applications, serverless, CNCF governance, maturity model, personas, open standards, AI-driven optimization and automation.
- Module 4: Cloud Native Observability – Introduction, three pillars, Prometheus, AI-powered analytics, cost management, predictive analytics, anomaly detection.
- Module 5: Cloud Native Application Delivery – Fundamentals, manifest files, YAML/Helm/Kustomize, immutable infrastructure, GitOps, CI/CD, self-healing, AI-driven automation and optimization.

Unit 14: Certified Kubernetes Application Developer (CKAD)

Unit Objectives:

- Design and build containerized applications for Kubernetes deployment.
- Utilize appropriate workload resources and multi-container pod design patterns.
- Implement application deployment strategies including blue/green and canary deployments.
- Apply observability, monitoring, and debugging techniques for applications.
- Configure application security, environment configuration, services, and networking.

Unit Course:

- Module 1: Application Design and Build – Container images, workload resources (Deployment, DaemonSet, CronJob), multi-container pod design patterns, storage options, AI-driven container orchestration.
- Module 2: Application Deployment – Deployment strategies (blue/green, canary), rolling updates, Helm package manager, Kustomize, AI-powered deployment automation.
- Module 3: Application Observability and Maintenance – API deprecations, probes and health checks, monitoring with CLI tools, container logging, debugging techniques, AI-driven predictive monitoring.
- Module 4: Application Environment, Configuration, and Security – Extending Kubernetes with CRDs and Operators, authentication/authorization, resource management, configuration management with ConfigMaps and Secrets, security best practices, AI-driven security automation.
- Module 5: Services and Networking – Network policies, application access via services (ClusterIP, NodePort, LoadBalancer), Ingress rules, AI-powered network traffic analysis.

Unit 15: Certified Kubernetes Administrator (CKA)

Unit Objectives:

- Deploy, manage, and troubleshoot Kubernetes clusters in production environments.
- Design storage solutions using Persistent Volumes and StorageClasses.
- Apply troubleshooting techniques for applications, nodes, clusters, and networking.
- Implement workload management, deployment strategies, and scheduling.
- Configure cluster architecture, installation, upgrades, and networking services.

Unit Course:

- Module 1: Storage – StorageClasses, Persistent Volumes, volume modes, access modes, reclaim policies, Persistent Volume Claims, configuring applications with persistent storage, AI-powered predictive storage optimization.
- Module 2: Troubleshooting – Cluster and node logging, application monitoring, managing container logs, troubleshooting application failures, cluster component failures, networking issues, AI-assisted autonomous troubleshooting.
- Module 3: Workloads & Scheduling – Deployments, rolling updates, rollbacks, ConfigMaps and Secrets, scaling applications, self-healing, pod scheduling, resource limits, manifest management, AI-driven intelligent workload scheduling.
- Module 4: Cluster Architecture, Installation & Configuration – RBAC management, installing Kubernetes with Kubeadm, managing highly available clusters, provisioning infrastructure, upgrading clusters, etcd backup and restore, AI-driven cluster health optimization.
- Module 5: Services & Networking – Host networking configuration, pod-to-pod connectivity, service types, Ingress controllers and resources, CoreDNS configuration, choosing a CNI, AI-powered network traffic optimization.

Unit 16: Certified Kubernetes Security Specialist (CKS)

Unit Objectives:

- Implement security best practices for Kubernetes clusters at all levels.
- Design cluster hardening, system hardening, and network security strategies.
- Analyze and minimize microservice vulnerabilities throughout the supply chain.
- Implement monitoring, logging, and runtime security solutions.
- Evaluate and apply AI-driven security solutions in Kubernetes environments.

Unit Course:

- Module 1: Cluster Setup – Implementing network security policies, CIS benchmark security review, Ingress security with TLS, node metadata protection, verifying platform binaries, AI-driven security posture management.
- Module 2: Cluster Hardening – RBAC for minimal exposure, service account security, Kubernetes API access restrictions, version upgrades for vulnerability mitigation, AI-powered anomaly detection.
- Module 3: System Hardening – Minimizing host OS footprint, least-privilege IAM, restricting external network access, kernel hardening with AppArmor/seccomp/SELinux, AI-driven threat detection.
- Module 4: Minimizing Microservice Vulnerabilities – Pod Security Standards, managing Kubernetes Secrets securely, isolation techniques for multi-tenancy, pod-to-pod encryption with Cilium, AI-powered security and threat response.
- Module 5: Supply Chain Security – Minimizing base image footprint, understanding software supply chain, SBOM, image signing and verification, static analysis of images, AI-driven threat detection.
- Module 6: Monitoring, Logging, and Runtime Security – Behavioral analytics for threat detection, threat detection across infrastructure, attack investigation, container immutability, Kubernetes audit logs, AI-driven security automation.

Unit 17: Kubernetes and Cloud Native Security Associate (KCSA)

Unit Objectives:

- Analyze cloud-native security principles and the 4Cs of security.
- Evaluate Kubernetes component security and apply best practices.
- Implement Kubernetes security fundamentals including Pod Security, Authentication, and Secrets.
- Analyze the Kubernetes threat model and apply appropriate mitigations.
- Apply platform security, compliance, and security frameworks to containerized environments.

Unit Course:

- Module 1: Overview of Cloud Native Security – The 4Cs of security, cloud provider security, controls and frameworks, artifact repository security, workload security, AI-powered threat detection.
- Module 2: Kubernetes Cluster Component Security – API Server, Controller Manager, Scheduler, Kubelet, Container Runtime, KubeProxy, Pod, Etcd, container networking, client security, storage, container build process.
- Module 3: Kubernetes Security Fundamentals – Pod Security Standards, Pod Security Admissions, Authentication, Secrets, Isolation and Segmentation, Audit Logging, Network Policy, AI-powered threat detection and policy enforcement.
- Module 4: Kubernetes Threat Model – Trust boundaries and data flow, persistence, denial of service, malicious code execution, securing Kubernetes network.
- Module 5: Platform Security – Supply chain security, image repository, observability, service mesh, PKI, connectivity, AI-powered supply chain security.
- Module 6: Compliance and Security Frameworks – Compliance frameworks, threat modeling frameworks, supply chain compliance, automation and tooling, AI-driven compliance automation.

Unit 18: LinkedIn Course for Job Seekers

Unit Objectives:

- Enable learners to effectively use LinkedIn for job searching and freelancing opportunities
- Develop skills in personal branding and content marketing on LinkedIn
- Build professional networks and identify hidden job markets
- Create an optimized LinkedIn profile that attracts recruiters and clients

Unit Curriculum:

- Understanding LinkedIn's ecosystem for job search and freelancing
- Branding as a subject matter expert and thought leader
- Content and keyword targeting strategies
- About Summary optimization and content relevance
- Networking and identifying the hidden job market
- LinkedIn Marketplace for freelancers
- Tools for targeting global emerging technology opportunities
- Q&A live sessions with LinkedIn coach

- Toolkits, worksheets, and best practice guides
-

Unit 19: IELTS Academic and General Training

Unit Objectives:

- Prepare students for the IELTS examination
- Improve reading, writing, listening, and speaking skills
- Develop strategies for attempting each section of the IELTS test
- Build confidence in English language usage for academic and general contexts

Unit Curriculum:

- Reading for gist, scanning details, and in-depth reading
 - Listening for gist, important details, and deeper meanings
 - Writing cohesive essays (argumentative, descriptive, discursive)
 - Letter writing and academic analysis of graphs, charts, and tables
 - Speaking fluently in work-based and academic scenarios
 - Everyday conversation skills in English
 - Test-taking strategies and exam techniques
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