

Diploma in **Artificial Intelligence 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 Artificial Intelligence Advancement is a rigorously structured program designed to equip learners with a complete, industry-ready skillset spanning the entire lifecycle of AI and Machine Learning—from foundational mathematics and programming to advanced model deployment—while simultaneously fortifying their expertise with a robust cybersecurity foundation.

The core curriculum is built upon ten specialized AI and Data Science units, ensuring deep technical proficiency. Learners begin with Python Deep Dive and ML with Python to master programming fundamentals, followed by the Mathematics and Python Implementation for ML unit to solidify the essential mathematical theory. The program covers all major ML paradigms through the Artificial Intelligence and Practical Applications of ML units, and extends into advanced territories—including Bayesian networks, ensemble methods, kernel methods, and reinforcement learning—via the Advanced Topics in Machine Learning unit.

Learners gain specialized expertise in high-demand domains through dedicated units on Deep Learning (covering CNNs, RNNs, LSTMs, GANs, and Transformers), a Deep Learning Deep Dive for architectural mastery, Computer Vision (OpenCV, PyTorch, TensorFlow, object detection, and segmentation), and Natural Language Processing (NLP) (text preprocessing, POS tagging, parsing, and sentiment analysis). Crucially, the program bridges the gap between experimentation and production with a complete unit on ML Model Development and Deployment, covering containerization (Docker), API design, CI/CD pipelines, real-time serving, and cloud deployment strategies on platforms like AWS and Azure—giving learners practical hands-on experience with cloud computing labs that simulate real-world production environments.

To create a holistic technology professional, this diploma is uniquely supplemented by the six units of the Cloud Cyber Security Diploma. Learners gain vital security acumen through comprehensive units on CISSP (security governance, risk management, cryptography, and network security), Linux Deep Dive (system administration, networking, monitoring, and security hardening), and Red Hat Enterprise Linux (RHEL) (enterprise-level automation, containers with Podman, and high-availability clustering). This dual-focus approach enables graduates to not only build intelligent systems but also secure and maintain them within enterprise infrastructure.

Beyond technical skills, the program incorporates career-enabling professional development units. The LinkedIn Course for Job Seekers provides strategic training on personal branding, content targeting, networking, and unlocking the hidden job market, while the IELTS Training unit enhances English language proficiency for international career mobility. Learners are further supported with internships, resume development, and one-on-one interview coaching to ensure they are fully prepared for the job market.

The course leverages open-source, vendor-agnostic content delivered through high-quality recorded video lectures, step-by-step hands-on practice labs, custom cloud environments, and structured assignments. Learners benefit from continuous interaction with trainers

through dedicated community forums and live classes, ensuring a supportive and engaging educational experience.

Upon completion, graduates are fully prepared to pursue high-impact careers as AI Engineers, Machine Learning Developers, Data Scientists, Computer Vision Specialists, NLP Engineers, Cloud Security Specialists, and AI DevOps Engineers—with the capability to secure national or international job opportunities within 3 to 6 months of graduation.

2. Key Features of the Diploma

- EduQual endorsement, a globally recognised qualification.
- Nearly 1700 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 Diploma in Artificial Intelligence Advancement, endorsed by EduQual, holds significant value for those seeking careers in cloud computing and Artificial Intelligence. 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 Artificial Intelligence Advancement Diploma demonstrates the program's commitment to upholding high-quality standards and providing students with comprehensive training in AI. This diploma is an excellent option for individuals looking to improve their Artificial Intelligence methodologies and 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 Artificial Intelligence Advancement diploma 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-artificial-intelligence> 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 Python libraries (NumPy, Pandas, Matplotlib), implement machine learning pipelines, and evaluate supervised and unsupervised learning models. (ML with Python)
- Analyze fundamental AI concepts including search algorithms, adversarial search, and reasoning, and implement machine learning models for classification and recommendation systems. (Artificial Intelligence)
- Apply mathematical foundations—including linear algebra, calculus, probability, and optimization techniques—to implement machine learning algorithms from scratch. (Machine Learning - Mathematics and Python Implementation)
- Design and implement advanced machine learning solutions utilizing ensemble methods, dimensionality reduction, graphical models, Bayesian inference, and kernel methods. (Advanced Topics in Machine Learning)
- Design scalable ML system architectures, implement containerized model deployment strategies (batch, real-time, streaming), and apply CI/CD and monitoring practices for production environments. (Machine Learning Model Development and Deployment)

- Implement end-to-end machine learning solutions covering data preprocessing, regression, classification, clustering, and model evaluation with hyperparameter tuning using Python. (Practical Applications of Machine Learning)
- Design and train deep neural networks, including CNNs, RNNs, LSTMs, GANs, and Transformers, and apply them to complex problems in computer vision, NLP, and reinforcement learning. (Deep Learning)
- Analyze advanced deep learning architectures (AlexNet, VGG, ResNet, DenseNet, Transformer), implement optimization algorithms (Adam, RMSProp, Adagrad), and leverage multi-GPU computation for enhanced performance. (Deep Learning Deep Dive)
- Design and implement computer vision applications using OpenCV, PyTorch, and TensorFlow, including object detection (YOLO/SSD), image segmentation, pose estimation, and facial landmark detection. (Computer Vision)
- Implement Natural Language Processing pipelines encompassing text preprocessing, POS tagging, parsing (CKY), sentiment analysis, spelling correction, and information extraction using probabilistic and sequence models. (Natural Language Processing - NLP)
- Analyze enterprise security frameworks, design risk management and business continuity strategies, implement cryptography, PKI, and access control mechanisms, and evaluate compliance requirements. (CISSP)
- Design Linux system administration strategies, configure networking, package management, and security services (firewalld, iptables, SELinux), and implement monitoring solutions with Nagios. (Linux Deep Dive)
- Analyze Red Hat Enterprise Linux enterprise environments, implement automation with Ansible playbooks, configure containerized workloads with Podman, and manage high-availability clusters using Pacemaker. (Red Hat Enterprise Linux - RHEL)
- Design Python solutions leveraging OOP, decorators, generators, concurrency (threading, multiprocessing, asyncio), and web frameworks (Flask/Django), and apply AI tools for code optimization. (Python Deep Dive)
- Design a professional LinkedIn presence, implement personal branding and content targeting strategies, and evaluate targeted job and freelancing opportunities in the global emerging technology sector. (LinkedIn Course for Job Seekers)
- Apply advanced reading, writing, listening, and speaking strategies to achieve proficiency and secure a high band score in the IELTS examination for academic and professional purposes. (IELTS Training)

8. Who Should Enroll in this Program?

This Artificial Intelligence diploma is designed for:

- School, College and university students looking to gain admissions in the 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

- Artificial Intelligence Engineer, Machine Learning Engineer, Data Scientist
- Natural Language Processing Engineer, Computer Vision Engineer
- Deep Learning Engineer, Python Developer
- Software Developer in Machine Learning, Data Analyst
- Research Scientist in AI and Machine Learning.
- 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. Artificial Intelligence
6. ML with Python
7. Deep Learning
8. Machine Learning - Mathematics and Python Implementation
9. Advanced Topics in Machine Learning

10. Practical Applications of Machine Learning
11. Deep Learning Deep Dive
12. Machine Learning Model Development and Deployment
13. Computer Vision
14. Natural Language Processing (NLP)
15. Control Systems Infusion with AI (CSAI)
16. Pass all MCQs and all AI Razzaq part 1 labs given for the diploma
17. Achieve a 6.5 band or more in IELTS for UKVI
18. 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 Al 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. Al Razzaq Labs Program Access

Prerequisites for Lab Access

Access to Al 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
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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%

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

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 (17 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: 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 4: 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 5: Artificial Intelligence

Key Learning Objectives:

- Analyze fundamental AI concepts including search algorithms, adversarial search, and reasoning techniques.
- Implement heuristic search algorithms including A* and Best-First Search.
- Design game-playing agents using Minimax algorithm with Alpha-Beta Pruning.
- Apply machine learning models including Decision Trees, Neural Networks, and Naive Bayes for classification problems.
- Implement clustering algorithms including K-Means for unsupervised learning.

- Design recommendation systems using content-based and collaborative filtering approaches.
- Evaluate AI ethics considerations including data bias, robustness, and transparency.

Unit Course:

- Introduction and Course Overview (What is AI, Subfields, Context, Expectations)
- Problem Solving and Search (Classic Search Problems: Missionaries and Cannibals, Tower of Hanoi, Frog Problem, Mazes)
- Heuristic Search (Heuristics, A* Search, Best-First, Greedy Search)
- Adversarial Search (Game Playing, Minimax, Evaluation Function, Alpha-Beta Pruning)
- Introduction to Machine Learning (Basics, Supervised vs Unsupervised, Classification vs Regression, ML Process, Recap)
- Decision Trees (Induction, Measuring Impurity, Best Split, Stopping Criteria, Concluding DT)
- Classification Evaluation (Train-Test Split, Confusion Matrix, Accuracy, Class Imbalance, Precision, Recall, Sensitivity, Specificity, ROC Curve)
- Neural Networks (History, MLP, One-hot encoding, Activation Functions, Forward & Backward Pass, Learning Rate, Limitations)
- Naive Bayes (Probabilities, Bayes Theorem, Model Learning, Estimation from Data, Examples)
- Clustering (What is Clustering, Examples, Quality, Distance Metrics, Working of KMeans, Initial Centroids, Limitations)
- Recommendation Systems (Examples, Data, Content-based, Similarity, Latent Factor Model, Challenges)
- ML Code Walkthroughs (Scikit-learn Implementation, Classification, Clustering)
- Reasoning and Logic (Why Reasoning, Induction vs Deduction, Propositional & First Order Logic, Prolog, Inference Techniques)
- Probabilistic Reasoning (Uncertainty, Bayesian Networks, Belief Propagation, Markov Blanket)
- AI Ethics and Social Issues (Data Bias, Robustness, Fake Content, Machine Autonomy, Transparency)

UNIT 6: ML with Python

Key Learning Objectives:

- Analyze Python libraries including NumPy, Pandas, and Matplotlib for machine learning applications.
- Implement end-to-end machine learning pipelines covering data preprocessing, exploratory data analysis, and model building.
- Design and evaluate supervised learning models including Linear Regression, Logistic Regression, Decision Trees, Random Forests, SVM, and KNN.
- Apply unsupervised learning techniques including K-Means Clustering for data segmentation.
- Evaluate model performance using cross-validation, confusion matrices, precision, recall, F1-score, and ROC-AUC.
- Apply feature engineering techniques including feature selection, extraction, and handling imbalanced data.

Unit Course:

- Introduction to Machine Learning (Overview, Types, Applications)
- Python Basics for Machine Learning (Fundamentals, Data Structures, Functions)
- Essential Python Libraries (NumPy, Pandas, Matplotlib, Seaborn)
- Data Preprocessing (Cleaning, Feature Scaling, Encoding Categorical Variables)
- Exploratory Data Analysis (Descriptive Statistics, Visualization, Correlation Analysis)
- Machine Learning Models (Linear/Logistic Regression, Decision Trees, Random Forests, SVM, KNN, K-Means)
- Model Evaluation and Selection (Train-Test Split, Cross-Validation, Performance Metrics, Overfitting/Underfitting)
- Feature Engineering (Selection, Extraction, Handling Imbalanced Data)
- Advanced Topics (Ensemble Methods, NLP, Time Series Analysis)
- Model Deployment (Introduction, Streamlit, Cloud Platforms)

UNIT 7: Deep Learning

Key Learning Objectives:

- Design and train deep neural networks including CNNs, RNNs, LSTMs, and Transformers.
- Apply mathematical foundations including linear algebra, calculus, and probability to deep learning.
- Implement regularization techniques including L1, L2, and Dropout to prevent overfitting.
- Design and implement Convolutional Neural Networks for image classification and object detection.
- Apply Transfer Learning using pre-trained CNN models including VGG and ResNet.
- Implement RNNs, LSTMs, and GRUs for sequential data processing.
- Design and implement Generative Adversarial Networks (GANs) for image generation.
- Apply Natural Language Processing techniques including Word Embeddings, Transformers, and BERT.

Unit Course:

- Module 1: Introduction (Definition, History, AI/ML/DL Relationship, Neural Networks, Backpropagation, Gradient Descent)
- Module 2: Mathematical Foundations (Linear Algebra, Calculus, Probability, Optimization)
- Module 3: Building Neural Networks (Activation Functions: Sigmoid, ReLU, Tanh, Softmax; Regularization: L1, L2, Dropout; Early Stopping)
- Module 4: Convolutional Neural Networks (Architecture, Convolutional Layers, Pooling, Flattening, Transfer Learning with VGG/ResNet, Dilated Convolutions, Instance vs Batch Normalization)
- Module 5: Recurrent Neural Networks (RNN Basics, Vanishing/Exploding Gradients, LSTMs, GRUs, Bidirectional RNNs, Attention Mechanisms, Transformers, BERT) [Status: Content Available]
- Module 6: Generative Models & GANs (Autoencoders, VAEs, GAN Architecture, Generator vs Discriminator, DCGANs, CycleGAN, Conditional GANs)

- Module 7: NLP with Deep Learning (Text Representation, Preprocessing, Word2Vec, GloVe, RNNs/LSTMs for Text, Transformers, Sentiment Analysis, Machine Translation, NER)
- Module 8: Reinforcement Learning (Components: Agent/Environment/Reward, MDPs, Deep Q-Learning, Policy Gradients, DQN)
- Module 9: Deep Learning Frameworks (TensorFlow, PyTorch, Keras, Building Models, Dynamic Computation Graphs)
- Module 10: Real-World Applications (Healthcare: Medical Imaging; Finance: Fraud Detection, Algorithmic Trading; Autonomous Vehicles: Object Detection, Self-Driving Cars)

UNIT 8: Machine Learning - Mathematics and Python Implementation

Key Learning Objectives:

- Apply mathematical foundations including linear algebra, calculus, probability, and optimization techniques to machine learning.
- Implement machine learning algorithms from scratch using Python and NumPy.
- Design data preprocessing pipelines and feature engineering strategies.
- Develop supervised learning models including Linear Regression, Logistic Regression, SVM, and Decision Trees.
- Implement unsupervised learning techniques including K-Means, Hierarchical Clustering, and PCA.
- Evaluate model performance and apply regularization techniques to prevent overfitting.
- Design and implement reinforcement learning and NLP solutions.

Unit Course:

- Module 1: Introduction to ML (Definition, Types, Applications, Pipeline, Understanding Data, Data Types, Preprocessing, Data Formats)
- Module 2: Mathematical Foundations
 - Linear Algebra (Vectors, Matrices, Eigenvalues, SVD)
 - Probability and Statistics (Conditional Probability, Bayes' Theorem, Distributions, Hypothesis Testing)
 - Calculus (Gradient, Partial Derivatives, Chain Rule, Gradient Descent, Optimization)
 - Optimization Techniques (SGD, Convex vs Non-convex, Learning Rates, Momentum, L1/L2 Regularization)
- Module 3: Python for ML
 - Python Basics (Syntax, Libraries, Data Structures)
 - Pandas (Importing, DataFrame, Missing Values, Grouping, Merging)
 - NumPy (Arrays, Broadcasting, Linear Algebra)
 - Visualization (Matplotlib, Seaborn, Plots, Distributions)
 - Scikit-Learn (Implementation, Data Splitting, Model Evaluation)
- Module 4: Supervised Learning

- Linear Regression (Mathematical Model, Cost Function, Gradient Descent, R^2 , MSE)
- Logistic Regression (Sigmoid, Binary/Multi-class, Scikit-Learn)
- Support Vector Machines (Hyperplanes, Margins, Kernel Trick)
- Decision Trees & Random Forests (Gini Index, Entropy, Pruning, Ensemble)
- K-Nearest Neighbors (Distance Metrics, Optimal K-value)
- Module 5: Unsupervised Learning
 - K-Means Clustering (Algorithm, Elbow Method)
 - Hierarchical Clustering (Agglomerative, Dendrogram)
 - Principal Component Analysis (Dimensionality Reduction, Eigenvectors)
 - Anomaly Detection (IQR, Z-Score, One-Class SVM, Isolation Forest)
- Module 6: Neural Networks & Advanced Topics
 - Neural Networks (Perceptron, Layers, Activation Functions, Backpropagation, Dropout, Keras)
 - Deep Learning (MLP, CNN, RNN, LSTM, GRU)
 - Autoencoders & Generative Models (VAE, GANs)
 - Model Evaluation (Precision, Recall, F1, Confusion Matrix, ROC, Cross-Validation)
 - Hyperparameter Tuning (Grid Search, Randomized Search)
 - Ensemble Learning (Bagging, Boosting, XGBoost, LightGBM)
 - Reinforcement Learning (MDP, Value Iteration, Q-Learning, DQN)
 - Natural Language Processing (Preprocessing, Tokenization, Word Embeddings, Sentiment Analysis)

UNIT 9: Advanced Topics in Machine Learning

Key Learning Objectives:

- Design and implement advanced ensemble methods including Bagging, Boosting, Stacking, and Blending.
- Analyze dimensionality reduction techniques including PCA, t-SNE, UMAP, and Factor Analysis.
- Apply clustering techniques including DBSCAN, Gaussian Mixture Models, and hierarchical clustering.
- Design and implement graphical models including Bayesian Networks and Markov Random Fields.
- Apply inference techniques including Variable Elimination, Belief Propagation, and MCMC methods.
- Analyze latent variable models including LDA, HMMs, and Kalman Filters.
- Design and implement reinforcement learning solutions using Q-Learning, SARSA, and Policy Gradients.
- Apply kernel methods including Kernel PCA and Kernel SVMs.

Unit Course:

- Module 1: Introduction to ML (Core Concepts, Types, Workflow)
- Module 2: Classification Models (Logistic Regression, KNN, Naive Bayes, Perceptron, SVM, Decision Trees, Evaluation Metrics)
- Module 3: Advanced Supervised Learning (Ensemble Methods: Bagging, Boosting, Stacking, Blending; GLMs; Discriminative vs Generative)

- Module 4: Dimensionality Reduction (Curse of Dimensionality, PCA, Probabilistic PCA, Factor Analysis, t-SNE, UMAP, Feature Selection)
- Module 5: Clustering (Distance Metrics, K-Means, K-Medoids, Hierarchical, DBSCAN, GMMs, Evaluation: Silhouette, Davies-Bouldin)
- Module 6: Frequent Pattern Mining (Itemsets, Support, Confidence, Lift, Apriori, FP-Growth)
- Module 7: Graphical Models (Bayesian Networks, Conditional Independence, D-separation; MRFs, Factor Graphs)
- Module 8: Inference in Graphical Models (Variable Elimination, Belief Propagation, Junction Tree, Variational Inference, Mean-Field, KL Divergence, ELBO, MCMC, Metropolis-Hastings, Gibbs Sampling)
- Module 9: Latent Variable Models (Sparse Priors, ARD, LDA, HMMs, Kalman Filters)
- Module 10: Advanced Kernel Methods (Kernel Trick, RKHS, Polynomial/RBF Kernels, Kernel PCA, Kernel SVMs)
- Module 11: Nonparametric Models (Gaussian Processes, Covariance Functions, Hyperparameter Learning; Dirichlet Processes, CRP, Stick-Breaking)
- Module 12: Reinforcement Learning (MDPs, Bellman Equations, Q-Learning, SARSA, DQN, Policy Gradients, Actor-Critic)
- Module 13: Neural Networks & Deep Learning (MLPs, CNNs, RNNs, LSTMs, Transformers, EBMs, RBMs)
- Module 14: Specialized Applications (NLP, Recommender Systems, Time Series, Survival Analysis, Anomaly Detection, GNNs, Active Learning, Genetic Algorithms)

UNIT 10: Practical Applications of Machine Learning

Key Learning Objectives:

- Implement end-to-end machine learning solutions covering data preprocessing, model building, and evaluation.
- Apply regression techniques including Linear, Multiple, Polynomial, and Support Vector Regression.
- Design classification solutions using Logistic Regression, KNN, SVM, Naive Bayes, Decision Trees, and Random Forests.
- Implement clustering techniques including K-Means and Hierarchical Clustering.
- Evaluate model performance using accuracy, precision, recall, F1-score, confusion matrix, and ROC-AUC.
- Apply hyperparameter tuning using Grid Search and Random Search.
- Implement advanced techniques including AdaBoost, Gradient Boosting, and Deep Learning.

Unit Course:

- Domain 1: Introduction (Overview, Applications, Types, Terminology)
- Domain 2: Data Preprocessing (Data Types, Collection, Cleaning, Missing Data, Outliers, Normalization, Feature Engineering, Encoding, Scaling, Transformation, Binning, Discretization)
- Domain 3: ML Models
 - Regression (Simple/Multiple/Polynomial, SVR, Decision Tree, Random Forest)

- Classification (Logistic Regression, KNN, SVM, Kernel SVM, Naive Bayes, Decision Tree, Random Forest)
 - Clustering (K-Means, Hierarchical)
 - Performance Metrics (Overview)
 - Domain 4: Model Evaluation (Accuracy, Precision, Recall, F1, Confusion Matrix, ROC-AUC, Cross-Validation, K-Fold, Stratified K-Fold, Hyperparameter Tuning, Grid Search, Random Search)
 - Domain 5: Advanced Techniques (AdaBoost, Gradient Boosting, Deep Learning - Neural Networks, Training, Keras/TensorFlow)
 - Domain 6: Hands-on Projects (Problem Statement, Data Acquisition, Model Building, Evaluation, Python Code Templates)
-

UNIT 11: Deep Learning Deep Dive

Key Learning Objectives:

- Analyze advanced deep learning architectures including AlexNet, VGG, NiN, GoogLeNet, ResNet, and DenseNet.
- Implement optimization algorithms including SGD, Momentum, AdaGrad, RMSProp, and Adam.
- Apply weight decay, dropout, batch normalization, and numerical stability techniques.
- Design and implement attention mechanisms and Transformer architectures.
- Leverage multi-GPU computation for enhanced performance.
- Implement Generative Adversarial Networks including DCGANs.

Unit Course:

- Installation (Miniconda, d2l Notebooks, MXNet, GPU Support, Exercises, QR Code Discussion)
 - Multilayer Perceptron (Implementation from Scratch, Concise Implementation, Model Selection, Underfitting/Overfitting, Weight Decay, Dropout, Forward/Backward Propagation, Numerical Stability, Initialization)
 - Deep Learning Computation (Layers, Blocks, Parameter Management, Deferred Initialization, Custom Layers, File I/O, GPUs)
 - Deep Convolutional Neural Networks (AlexNet, VGG, NiN, GoogLeNet, Batch Normalization, ResNet, DenseNet)
 - Attention & Optimization (Attention Mechanism, Seq2Seq with Attention, Transformer, Convexity, Gradient Descent, SGD, Minibatch SGD, Momentum, Adagrad, RMSProp, Adadelata, Adam)
 - Computational Performance (Hybrid Programming, Asynchronous Computing, Automatic Parallelism, Multi-GPU Implementation)
 - Generative Adversarial Networks (GANs, DCGANs)
-

UNIT 12: Machine Learning Model Development and Deployment

Key Learning Objectives:

- Design scalable ML system architectures including data, feature, scoring, and evaluation layers.
- Implement containerized model deployment strategies using Docker.
- Apply batch, real-time, streaming, and edge deployment methods.
- Design and implement RESTful APIs for model serving.
- Implement CI/CD pipelines for machine learning models.
- Apply monitoring, scaling, and drift detection techniques for production ML systems.
- Evaluate and address technical, operational, data, and model-specific deployment challenges.

Unit Course:

- Module 1: Introduction (Definition, Development vs Deployment, Why Deployment Matters)
- Module 2: System Architecture (Data Layer, Feature Layer, Scoring Layer, Evaluation Layer)
- Module 3: Deployment Methods (One-Off, Batch, Real-Time, Streaming, Edge Deployment)
- Module 4: Deploying in Production
 - Model Preparation (Final Training, Validation, Artifact Packaging)
 - Deployment (Cloud vs On-Prem vs Edge)
 - Containerization (Dockerizing Models)
 - API Design & Deployment (Endpoints, Authentication, Orchestration)
 - Monitoring & Scaling (Latency, Throughput, Auto-Scaling)
 - CI/CD for ML (Automated Testing and Rollout)
 - Post-Deployment Maintenance (Drift Detection and Retraining)
- Module 5: Challenges (Technical, Operational, Data, Model-Specific)
- Module 6: Organizational Preparation (Data-Driven Culture, Tooling & Infrastructure, Process & Governance, Responsible AI)

UNIT 13: Computer Vision

Key Learning Objectives:

- Design and implement computer vision applications using OpenCV, PyTorch, and TensorFlow.
- Apply image processing techniques including filtering, enhancement, geometric transforms, and segmentation.
- Implement image classification models and custom image classifiers.
- Design and implement object detection algorithms including YOLO, SSD, and R-CNNs.
- Apply image segmentation techniques including FCN and semantic segmentation.
- Implement facial landmark detection, face recognition, and pose estimation.
- Apply GANs for neural style transfer and image generation.

Unit Course:

- Introduction to CV (Applications, Image Processing, Python/Watson/OpenCV, Classification Models, Custom Classifiers)
- Fundamentals of CV & Image Processing (OpenCV Setup, Video Processing, GUI, Binary Processing, Enhancement, Filtering, Geometric Transforms, Segmentation,

Recognition, Video Analysis, Deep Learning with OpenCV, Computational Photography)

- Deep Learning with PyTorch (Setup, Neural Networks, CNNs, Training Best Practices, Segmentation, Object Detection Fundamentals, Fine-tuning, GANs)
 - Deep Learning with TensorFlow/Keras (Setup, Single Stage Detectors YOLO/SSD, TensorFlow Object Detection API, Image Segmentation, Pose Estimation, GANs)
 - CV & DL Applications (Facial Landmark Detection, Snapchat Filters, Face Recognition, Object Detection, Text Detection & OCR, Cloud Deployment)
 - Advanced Object Detection (Pikachu Dataset, SSD, R-CNNs, Semantic Segmentation, Transposed Convolution, FCN, Neural Style Transfer, CIFAR-10, ImageNet Dogs)
-

UNIT 14: Natural Language Processing (NLP)

Key Learning Objectives:

- Implement Natural Language Processing pipelines including text preprocessing, tokenization, stemming, lemmatization, and normalization.
- Apply word and sentence segmentation techniques including algorithms for Urdu segmentation.
- Design probabilistic language models including n-gram, bigram, and trigram models.
- Implement spelling correction using noisy channel models and minimum edit distance.
- Apply Part of Speech Tagging using Hidden Markov Models and the Viterbi algorithm.
- Implement syntactic parsing using Context-Free Grammars, PCFGs, and CKY algorithm.
- Design sentiment analysis solutions using baseline algorithms and sentiment lexicons.
- Implement Named Entity Recognition and relation extraction using sequence models.

Unit Course:

- Introduction to NLP (What is NLP, Stages, Applications, Challenges)
 - Text Preprocessing (Tokenization, Normalization, Stemming, Lemmatization)
 - Segmentation (Word/Sentence Segmentation, Urdu Segmentation, Algorithms)
 - Language Modeling (Probabilistic Models, N-grams, Perplexity, Interpolation, Smoothing)
 - Spelling Correction (Noisy Channel Model, Minimum Edit Distance)
 - Part of Speech Tagging (POS Tagging, Sequence Models, HMM, Viterbi Algorithm)
 - Parsing (Syntactic Parsing, CFG, PCFGs, CKY Algorithm, Constituency Parsing)
 - Other Parsing (Lexicalized PCFGs, Dependency Parsing, Semantic Parsing, GLM for Dependency Parsing)
 - Sentiment Analysis (Baseline Algorithms, Sentiment Lexicons, Text Classification)
 - Information Extraction (NER, Traditional vs Modern NER, Sequence Models, Maximum Entropy, Relation Extraction)
-

UNIT 15: CSAI (Control Systems Infusion with AI)

Unit Objectives:

- Master AI-enhanced device calibration, diagnostics, and maintenance
- Execute pre-deployment planning and commissioning with AI verification
- Develop AI-assisted documentation and schematic interpretation skills
- Apply AI-powered troubleshooting, safety compliance, and cybersecurity

Unit Curriculum:

- Domain 1: Device Accuracy, Upkeep & Diagnostics
 - Focuses on instrument calibration, equipment evaluation, maintenance strategies, control loop fault isolation, repair execution, safety protocols, diagnostic equipment selection, and troubleshooting
 - Emphasizes AI-enhanced predictive maintenance, anomaly detection, automated documentation, and intelligent diagnostics for industrial instrumentation and network devices
- Domain 2: Pre-Deployment Planning & Commissioning
 - Covers on-site system verification, loop component installation review, loop simulation and testing, and control system component auditing
 - Emphasizes AI-driven validation, performance testing, compliance verification, and intelligent field audits before system deployment
- Domain 3: Process Documentation & Interpretation
 - Covers service activity recording (calibration logs, maintenance entries, repair histories, troubleshooting notes) and diagram/symbol utilization
 - Emphasizes AI-enabled logging, predictive maintenance insights, automated documentation, and intelligent schematic interpretation

UNIT 16: LinkedIn Course for Job Seekers

Key Learning Objectives:

- Design a professional LinkedIn presence for maximum visibility and impact.
- Apply personal branding strategies to establish recognition in the job market.
- Implement content creation and keyword targeting techniques for better search visibility.
- Apply effective networking techniques to build targeted professional connections.
- Evaluate job search and freelancing opportunities in the emerging technology sector.
- Engage with recruiters and identify opportunities in the hidden job market.
- Utilize LinkedIn Marketplace for freelancing and lead generation.

Unit Course:

- LO1: Understanding LinkedIn's Ecosystem
 - Introduction to LinkedIn Opportunities (Market Size, Profile Creation)
 - Branding as a Subject Matter Expert (Personal Branding, Recognition Tools)
 - Content & Keyword Targeting (Keywords, Open to Work, Trending Skills, 9 Mistakes to Avoid)
 - About Summary Optimization (Formula, Storytelling, Content Forms, Features)
 - Networking & Hidden Job Market (Network Building, Events, Groups, Recruiters)

- LO2: LinkedIn Marketplace for Freelancers (Finding Opportunities, Lead Generation, Global Business)
- LO3: Targeting Global Emerging Technology Sector (Tools: Events, Groups, Networks, Global Opportunities)
- LO4: Q&A Live Sessions (Algorithm Updates, New Features, Direct Coaching - 60 min bi-weekly)
- LO5: Continued Learning (Toolkits, Worksheets, Best Practice Guides)

Learner Resources:

- Textbook: LinkedIn Masterminds by Hammad Siddiqui
- Websites: [linkedin.com](https://www.linkedin.com)
- Toolkits: LinkedIn Guide, Audit Toolkit, Job Seekers Checklist, 1000 Top Hashtags, Trending Skills, Recommendation Templates, Profile Checklists, Networking Best Practices

UNIT 17: IELTS Academic and General Training

Key Learning Objectives:

- Apply advanced reading strategies to understand gist, scan details, and interpret deeper meanings.
- Apply advanced listening strategies to understand spoken English in various contexts.
- Write cohesive and coherent essays, letters, and academic analyses of graphs, charts, and tables.
- Speak fluently and accurately in workplace, academic, and everyday scenarios.
- Achieve a high band score in the IELTS examination for academic and professional purposes.

Unit Course:

- LO1: Reading Skills (Reading for Gist, Important Details, Deeper Meanings; MCQs, Open and Close-Ended Questions)
- LO2: Listening Skills (Listening for Gist, Important Details, Deeper Meanings; Comprehension Activities)
- LO3: Writing Skills (Argumentative, Descriptive, Discursive Essays; Letters; Academic Analysis of Graphs/Charts/Tables)
- LO4: Speaking Skills (Workplace Scenarios, Educational Environments, Everyday English, Casual Conversations)

Learner Resources:

- Textbooks: Collins IELTS Series, Cambridge IELTS Series, Barron's IELTS, Oxford IELTS Practice Tests, The Official Cambridge Guide to IELTS
 - Journals: Journal of English for Academic Purposes, TESOL Quarterly, Language Assessment Quarterly, Assessing Writing, Language Testing
 - Websites: ielts.org, britishcouncil.org/exam/ielts, cambridgeenglish.org/exams-and-tests/ielts
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