



# Diploma in

# **DIPLOMA IN ARTIFICIAL INTELLIGENCE ADVANCEMENT**

Accredited by  **EduQual** UK

 CERTIFIED PARTNER OF  
**ISACA**®



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# About the Diploma

The Artificial Intelligence Advancement Diploma aims to equip learners with hands-on skills and expertise in various job roles. The program covers topics such as Python programming for machine learning, Deep learning, Machine learning Mathematics and Python implementation, and Machine learning Model Development, which are essential for building software that can make human-like interactions and decisions. In addition, learners are provided with Amazon Web Services cloud computing hands-on labs that simulate practical use cases. The diploma focuses on enabling learners to analyze, design, implement, and evaluate outcomes through a hands-on approach. It also aims to develop learners' understanding of technical aspects such as design, development, deployment, maintenance, and troubleshooting.

The Artificial Intelligence Advancement Diploma is supplemented with the contents of the Cloud Cyber Security Diploma, enabling learners to develop a more comprehensive understanding of emerging sciences and increase their employability with diversified knowledge.

The course material exposes learners to different perspectives on emerging technologies. Learners are also offered internships, resume development, and interview coaching to prepare them for job interviews. Graduates of the program can pursue careers as Artificial Intelligence engineers and AI developers, among other roles, within 3-6 months, giving them national or international job opportunities. The course uses open-source, vendor-agnostic content and offers recorded videos, hands-on practice, custom cloud labs, and assignments to ensure that learners are prepared for job roles. Hands-on practice includes step-by-step guidance and interaction with trainers through communities, forums, and live classes, with a focus on employability.

# Key Features of the Diploma



EduQual Globally  
Recognized  
Certificate



400+ hands-on  
cloud labs



Self-paced learning  
5000+ hands-on  
projects



Job description  
learning



8X higher live  
interaction with live  
online classes by  
Industry experts



Student  
Communities



Resume building



Interview  
Preparation



Internship  
Program



Global  
Undergraduate  
program eligibility



Gain full expertise in Cloud  
Environments with Cloud  
Playground's on-demand servers  
and specialized containers for labs



# About our Diploma Program (Accredited by EduQual)

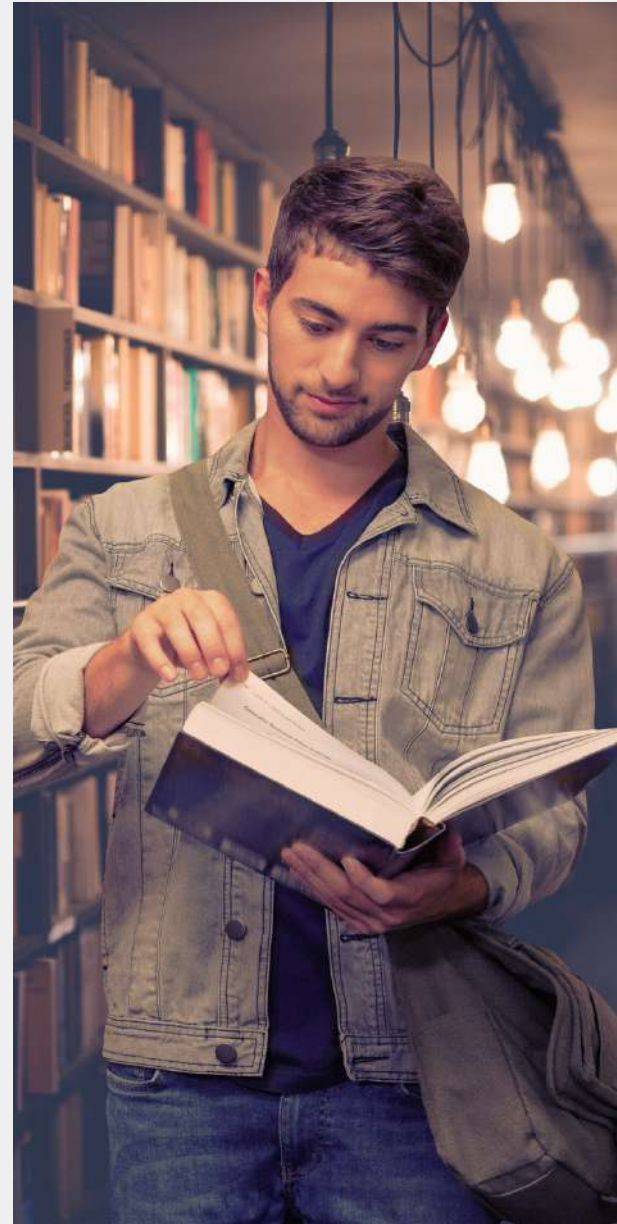
The Artificial Intelligence Advancement Diploma is accredited by EduQual, a globally recognized awarding organization that offers highly respected qualifications acknowledged by employers and academic institutions worldwide. The accreditation ensures that the program maintains high-quality standards and provides comprehensive training not only in Artificial Intelligence but also in cloud computing. This diploma is an excellent choice for individuals looking to enhance their Artificial Intelligence skills and career prospects in this rapidly changing sector. Moreover, as this diploma corresponds to Level 4 of the Regulated Qualifications Framework (RQF), successful graduates may be eligible for a first-year exemption in an undergraduate program.

## Upon completion of this diploma program, you will:

- Receive a Certificate from EduQual after completion of the diploma program.
- Eligible for Al Nafi Alumni membership

## About Al Nafi

Al Nafi, 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 customized programs are designed to help both individuals and organizations achieve their career and business objectives.



# Program Eligibility Criteria & Application Process

To apply for the SysOps and Cloud Development 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/tracks/aiat> can be used by learners to complete their application.



## Eligibility Criteria

To enrol in the SysOps and Cloud Development Diploma at Eduqual Level 4, there are no specific courses or academic prerequisites required. However, candidates must possess the following:

- A laptop 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.

## 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

#### ADMISSION

Once your payment method and plan have been verified, immediately begin your studies.

# 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 interest-free student loan (if applicable)
- Clarify any confusion you have about the diploma program



# Program Outcomes



Gain a broad understanding of various areas of Artificial Intelligence, including Search and Optimization, Machine Learning, Logic and Reasoning, Recommendation Systems, and Natural Language Processing, and apply them to real-world problems while discussing the social and ethical issues that arise with AI advancements. (Artificial Intelligence)



Explore advanced concepts and techniques of Deep Learning from an intuitive, mathematical and implementation perspective. (c)



Comprehensive understanding of Python programming constructs, with a specific focus on its applications in Machine Learning and Artificial Intelligence. (Python Programming for Machine Learning)



Introduce basic concepts and techniques of Machine Learning from an intuitive, mathematical & implementation perspective. (Machine Learning - Mathematics and Python Implementation)



Advanced algorithms of Machine Learning with an emphasis on mathematics, intuitive explanation and implementation. (Advanced topics in Machine Learning)





Apply the machine learning algorithms to some practical problems such as stock price prediction, image classification, disease diagnostics etc. (Practical Applications of Machine Learning)



Deep comprehension of artificial neural networks and deep learning's core ideas and methods. (Deep Learning Deep Dive)



Develop, deploy, and maintain machine learning models. (Deep Learning Deep Dive)



Construct and implement computer vision models for real-world applications, critically evaluate the model's efficacy, and understand its limitations. (Computer Vision)



Understand and apply mathematical and computational principles in Natural Language Processing to create systems that can compute and understand, generate, and manipulate human language through hands-on practice. (Natural Language Processing)

# Who Should Enroll in this Program?

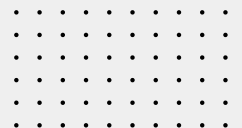
## This Artificial Intelligence Advancement Diploma is designed for:

- School and university students looking to expand their knowledge, skills, and career opportunities
- 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



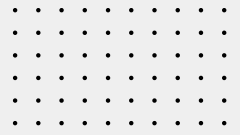
- Linux Administrator, System Administrator, DevOps Engineer
- Network Security Analyst, Penetration Tester, Ethical Hacker
- PCI DSS Compliance Auditor, Security Consultant, Compliance Officer
- Data Analyst, Data Scientist, Machine Learning Engineer
- Python Developer, Data Analyst, App Developer, 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

### Important Features:

- No academic prerequisites required
- Only a reliable internet connection and a laptop/PC needed



# Learning Path



1

**Artificial intelligence**



2

**Python Programming for Machine Learning**



3

**Deep Learning**



4

**Machine Learning - Mathematics and Python Implementation**



5

**Advanced topics in Machine Learning**



6

**Practical Applications of Machine Learning**



7

**Deep Learning Deep Dive**



8

**Machine learning Model Development and Deployment**



9

**Computer Vision**



10

**Natural Language Processing**



11

**Get ready and take exam**



**EduQual Certificate**

# Artificial intelligence

The course aims to teach students the concepts and techniques involved in solving problems using search, intelligent search techniques, supervised learning, clustering, rule-based systems, predicate logic, and Bayesian networks. Additionally, the course addresses ethical and social issues related to artificial intelligence, such as transparency, algorithm bias, scalability, surveillance, and employment shift. Students will gain a deep understanding of these concepts through practical exercises and hands-on experience, enabling them to apply their newfound knowledge to real-world problems. By the end of the course, students will have the skills and knowledge necessary to pursue careers in artificial intelligence and related fields, as well as the ability to critically evaluate the ethical and social implications of AI.

## Key Learning Objectives:

- Understand how to solve problems using search techniques such as Best-First and A\* Search.
- Learn about the algorithms used in search and game trees, such as Min-Max and Alpha-beta pruning.
- Gain knowledge of supervised learning techniques, including Artificial Neural Networks, Decision Trees, and Naïve Bayes.
- Comprehend the importance of classifier evaluation metrics like accuracy, precision, and recall.
- Learn about KMeans clustering and cluster quality, as well as rule-based systems and predicate logic.
- Understand the fundamentals of first-order logic and how to use it in Prolog.
- Gain knowledge about Bayesian Networks and the ethical considerations related to AI, such as transparency, algorithm bias, scalability, and employment shift.



## Course Curriculum

Lesson 1: Solving Problems Using Search and Intelligent Search Techniques

Lesson 2: Search Tree, Game Tree, Min-Max Algorithm, Alpha-Beta Pruning

Lesson 3: Supervised Learning, Artificial Neural Networks, Decision Tree, Naive Bayes, Classifier Evaluation

Lesson 4: KMeans Clustering, Cluster Quality, Rule-Based Systems

Lesson 5: Predicate Logic, First-Order Logic, Prolog

Lesson 6: Bayesian Networks

Lesson 7: Ethics and AI, Social and Ethical Issues such as Transparency, Algorithm Bias, Scalability, Surveillance, Employment Shift, etc.

## Python Programming for Machine Learning

The aim of this course is to provide learners with a solid foundation in Python programming language, its data structures, control flow, and its application in machine learning. Learners will gain a deep understanding of the traditional programming paradigm, types of programming languages, and the characteristics of Python. They will be able to comprehend the general programming components of a computer program and identify the conventions used by Python programs. Additionally, they will learn about various Python mathematical and logical operators and basic data types, as well as advanced data structures such as lists, dictionaries, tuples, and methods to access their portions and manipulate them. Furthermore, learners will gain knowledge on how to control the execution of programs through for, while loops, and if/else statements, as well as Python functions, passing arguments, and return values. Lastly, learners will extend their understanding of Python programming language to machine learning libraries and explore their features that aid the development of machine learning programs. By the end of this course, learners will have gained the necessary knowledge and skills to develop programs in Python and use it for machine learning.

## Key Learning Objectives

- Understand the traditional programming paradigm, types of programming languages and characteristics of Python
- Comprehend the general programming components of a computer program and their use. Identify the conventions used by Python programs.
- Learn various Python mathematical and logical operators and basic data types and how they are used in Python programs.
- Learn advanced data structures such as lists, dictionaries, tuples etc., and methods to access their portions and manipulate them.
- Understand how to control the execution of programs through for, while loops and if/else statements.
- Learn the Python functions, passing arguments and returning values.
- Extend the understanding of Python programming language to machine learning libraries.
- Explore their features that aid the development of machine learning programs.

## Course Curriculum

Lesson 1: Understanding Programming Paradigm and Python Characteristics

Lesson 2: Python Programming Components and Conventions

Lesson 3: Python Operators and Basic Data Types

Lesson 4: Advanced Data Structures and Manipulation

Lesson 5: Program Control Structures

Lesson 6: Python Functions

Lesson 7: Introduction to Machine Learning Libraries in Python

# Deep Learning

The main objective of this course is to provide a comprehensive understanding of the deep learning paradigm and its application to classical machine learning problems. Students will learn the terminology and concepts related to neural networks such as neurons, perceptron, nodes, weights, bias, neural network layers and the concept of hidden layers, and how to compute the input and output mathematical relationships. They will explore the architecture and mathematics of deep neural network structures such as feedforward, convolutional and recurrent, and learn the application of different neural networks to different problems and data such as visual, audio, textual, numerical, etc. By the end of the course, students will have a solid understanding of deep learning and be able to apply this knowledge to real-world problems.

## Key Learning Objectives

- Understand the deep learning paradigm and its application to classical machine learning problems.
- Comprehend the terminology and concepts related to neural networks and compute their mathematical relationships.
- Explore the architecture and mathematics of deep neural network structures such as feedforward, convolutional and recurrent.
- Understand the application of different neural networks to different problems and data.

## Course Curriculum

Lesson 1: Introduction to Deep Learning

Lesson 2: Terminology and Concepts of Neural Networks

Lesson 3: Architecture and Mathematics of Deep Neural Network Structures

Lesson 4: Application of Different Neural Networks to Different Problems and Data

# Machine Learning - Mathematics and Python Implementation

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This course aims to provide a comprehensive understanding of the machine learning paradigm and its basic tasks such as classification, regression, and clustering. Learners will comprehend the concept of accuracy, error, and validation to evaluate the effectiveness of machine learning algorithms. They will explore various machine learning algorithms and their implementations for different classes of problems. This course also introduces the concept of deep neural networks and their applications in machine learning. Students will learn how to categorize machine learning problems based on the given information, identify the data characteristics, and select the appropriate algorithms that provide adequate results. Additionally, they will apply different candidate algorithms to the data and compute performance metrics such as test and validation errors to select the best algorithm. By the end of the course, learners will be able to differentiate between traditional programming and machine learning paradigms and develop the skills necessary to apply machine learning algorithms to real-world problems.

## Key Learning Objectives

- Differentiate between traditional programming and machine learning paradigms.
- Understand the basic tasks in machine learning such as classification, regression, and clustering.
- Learn the concept of accuracy, error, and validation to evaluate the effectiveness of machine learning algorithms.
- Explore various machine learning algorithms and their implementations for different classes of problems.
- Introduce the concept of deep neural networks and their applications in machine learning.
- Categorize machine learning problems based on the given information.
- Identify the data characteristics and select the appropriate algorithms that provide adequate results.
- Apply different candidate algorithms to the data and compute performance metrics such as test and validation errors to select the best algorithm.

## Course Curriculum

Lesson 1: Understanding traditional programming paradigm and machine learning paradigm

Lesson 2: Classification, regression, and clustering in machine learning

Lesson 3: Concepts of accuracy, error, and validation in machine learning

Lesson 4: Introduction to machine learning algorithms and their implementation

Lesson 5: Deep neural networks and their applications in machine learning

Lesson 6: Categorizing machine learning problems

Lesson 7: Identifying adequate algorithms for different data characteristics

Lesson 8: Applying candidate algorithms, computing performance metrics, and selecting the best algorithm.

## Advanced Topics in Machine Learning

This course aims to provide learners with an in-depth understanding of machine learning algorithms such as decision trees, bagging, boosting, and SVMs. Learners will explore the mathematics behind these algorithms, and through the use of Jupyter notebooks and code, they will gain practical experience implementing and visualizing them. Learners will also study performance metrics and examine the impact of various parameters on the effectiveness of these algorithms. By the end of this course, learners will be able to categorize machine learning problems, identify algorithms suitable for specific data characteristics, and compare the results of various algorithms on the same data.

### Key Learning Objectives

- Explore decision trees and advanced algorithms such as bagging, boosting, Gradient boosting, Adaboost etc.
- Analyze nonlinear classifiers such as kernel methods, kernelized SVMs etc.



## Course Curriculum

Lesson 1: Introduction to Machine Learning Algorithms

Lesson 2: Decision Trees and Advanced Algorithms (Bagging, Boosting, Gradient Boosting, Adaboost)

Lesson 3: Nonlinear Classifiers (Kernel Methods, Kernelized SVMs)

Lesson 4: Implementation of Algorithms through Jupyter Notebooks

Lesson 5: Performance Metrics for Algorithms and Impact of Various Parameters

Lesson 6: Categorizing Machine Learning Problems

Lesson 7: Identifying Algorithms based on Data Characteristics

Lesson 8: Comparing Results of Various Algorithms on the Same Data

# Practical Applications of Machine Learning

This course aims to provide learners with hands-on experience in applying data manipulation, machine learning, and deep learning techniques to solve real-world problems. The course begins by introducing data manipulation techniques using Python, such as data cleaning, transformation, and feature engineering, to prepare data for machine and deep learning. Learners will then learn how to apply various machine and deep learning algorithms to solve problems such as stock price prediction, movie recommender systems, and medical diagnostics. Throughout the course, learners will use popular Python libraries such as NumPy, Pandas, Scikit-Learn, and TensorFlow to implement these algorithms. The course also covers how to visualize and interpret the results obtained from applying these algorithms. Upon completion of this course, learners will have a solid understanding of how to apply data manipulation, machine learning, and deep learning techniques to solve real-world problems using Python.

## Key Learning Objectives

- Apply data manipulation techniques on real data sets to prepare them for machine learning algorithms.
- Implement machine and deep learning algorithms to solve problems such as stock price prediction, movie recommender system, and medical diagnostics.
- Use Python libraries to develop visualizations of the results obtained from applying machine and deep learning algorithms to real data sets.

## Course Curriculum

Lesson 1: Data Manipulation Techniques

Lesson 2: Machine Learning Techniques

Lesson 3: Deep Learning Techniques

Lesson 4: Data Visualization Techniques

# Deep Learning Deep Dive

This course focuses on the application of various deep learning techniques on different types of datasets. Students will learn how to preprocess and split the data and build, train, and evaluate various neural network architectures such as ANN, CNN, RNN, LSTM, SOM, and autoencoders. They will also learn how to visualize the results using different tools and techniques. The course covers a range of applications such as image classification, fraud detection, and data transformation. By the end of the course, students will be proficient in deep learning techniques and be able to apply them to various real-world problems.

## Key Learning Objectives

- Understand the importance of dataset information and how to preprocess the data.
- Know how to split the data into training and testing sets, and build and train various neural network architectures such as ANN, CNN, RNN, LSTM, SOM, and autoencoders.
- Understand how to evaluate the models and visualize the results using various tools and techniques.
- Learn how to apply these techniques to various datasets and problems, including image classification, fraud detection, and data transformation.

## Course Curriculum

Lesson 1: Dataset Info, Data Preprocessing, Train Test Split, Building ANN, Training ANN, Evaluating Model, Codes and Dataset.

Lesson 2: Dataset Info, Preprocessing Images, Building CNN, Training CNN, Predicting Results, Codes.

Lesson 3: Dataset Info, Data Preprocessing, Building RNN and LSTM, Training Model, Predicting Results, Visualising Results, Visualisation Correction, Codes and Dataset.

Lesson 4: Dataset Info, Preprocessing Data, Training SOM, Visualising Results, Finding Frauds, Codes and Dataset.

Lesson 5: Dataset Info, Data Preprocessing I, Data Preprocessing II, Data Preprocessing III, Data Pre-processing IV, Data Preprocessing V, RBM Class, Training and Testing, Codes and Dataset.

Lesson 6: Data Preprocessing, Transform Data, To Tensor, Auto Encoder Architecture, Training and Testing, Codes and Datasets.

# Machine Learning Model Development and Deployment

This course aims to provide learners with the necessary skills to develop a gender classification web application using Python and Flask. Starting with the installation of Anaconda distribution and necessary libraries, learners will then be introduced to image processing techniques, including reading and resizing images and performing face detection on images and videos. Data processing techniques such as cropping, eigenfaces, and hyperparameter tuning will be covered in detail.

Moving on to building the Flask app, learners will be guided on how to create a folder structure, views, base HTML pages, and gender classification app pages. The course will also cover Flask routing, Jinja templates, static files, HTTP methods, and file uploads. The final lessons will focus on preparing the app for deployment, including pushing the app to GitHub and deploying it to Heroku. By the end of this course, learners will have the necessary skills to develop and deploy a web application using Python and Flask

## Key Learning Objectives

- Install Anaconda Distribution, create virtual environments, and install necessary libraries.
- Learn how to read and understand images, resize images, and perform face detection on images and videos.
- Understand data processing techniques such as cropping, eigenfaces, and hyperparameter tuning for machine learning models.
- Create a Flask app, learn Flask routing, use Jinja templates and static files, and handle HTTP methods and file uploads.
- Develop a folder structure and basic app structure, create views and base HTML pages, and build gender classification app pages.
- Set up code for deployment, push the app to Github and deploy an app to Heroku.

## Course Curriculum

- Lesson 1: Anaconda Distribution Installation, Creating Virtual Environments, Libraries Installation.
- Lesson 2: Introduction to Images, Reading Images I, Reading Images II, Understanding Pixels.
- Lesson 3: Resize Images I, Resize Images II, Face Detection on Images, Face Detection on Videos.
- Lesson 4: Data Understanding, Cropping an Image, Data Processing I, Data Processing II.
- Lesson 5: Eigen Faces I, Eigen Faces II, Training Machine Learning Model, Evaluation Metrics.
- Lesson 6: Hyper Parameter Tuning, Model Pipeline.
- Lesson 7: Setup VS Code and Flask, First Flask App, Flask Routing.

Lesson 8: Variable Rules, Jinja Template I, Jinja Template II, Jinja Template III, Inheritance.

Lesson 9: Static Files, HTTP Methods, Upload Files.

Lesson 10: Folder Structure, Main.py Basic App, Views.py File, Base HTML I, Base HTML II, Home Page.

Lesson 11: App Page, Gender App Page I, Gender App Page II, Gender App Page III, Gender App Page IV.

Lesson 12: Gender App Page V, Gender App Page VI, Gender App Page VII, Setup Code for Deployment.

Lesson 13: Push App to Github, Deploy App to Heroku, Ending Remarks.

## Computer Vision

This course covers the fundamentals of machine learning and computer vision using Python and popular libraries such as PyTorch and OpenCV. Learners will first be introduced to tensors, basic tensor operations, and linear and logistic regression techniques. They will gain an understanding of how these techniques can be applied to real-world problems through the course's practical examples and exercises.

Moving on to computer vision, learners will be introduced to the OpenCV library and its various functionalities such as reading images, videos, and webcams, resizing and cropping, colour spaces, translation and rotation, and various image processing techniques such as edge detection, shape detection, and histogram computation. They will also learn how to perform face detection and object detection using convolutional neural networks (CNNs) in PyTorch.

Throughout the course, learners will have access to code examples and resources, allowing them to practice and gain hands-on experience with the techniques and concepts covered. By the end of this course, learners will have a strong understanding of machine learning and computer vision using Python and be equipped with the necessary skills to apply these techniques to real-world problems.



## Key Learning Objectives

- Understand tensors and basic operations on them
- Learn linear regression and logistic regression techniques and their implementations using PyTorch
- Learn the basics of OpenCV and image and video processing
- Implement image manipulation techniques such as resizing, cropping, and colour space conversion
- Implement image detection techniques such as edge and shape detection and document scanning
- Learn how to perform face detection using OpenCV and PyTorch
- Understand how to build and train a convolutional neural network (CNN) using PyTorch for face detection
- Implement techniques such as data loading, loss function, and prediction in PyTorch for CNN
- Build a face detection project using OpenCV and PyTorch
- Implement Single Shot Detection (SSD) technique for real-time face detection on live videos
- Understand how to visualize the results on images and live videos.

## Course Curriculum

Lesson 1: Tensors and Linear Regression

Lesson 2: Logistic Regression

Lesson 3: PyTorch Basics

Lesson 4: Introduction to OpenCV

Lesson 5: Advanced Image Processing Techniques

Lesson 6: Face Detection

Lesson 7: Convolutional Neural Networks (CNNs)

Lesson 8: Project Setup and Object Detection

# Natural Language Processing

This course aims to provide learners with a comprehensive understanding of natural language processing using Python. Starting with the basics of text processing and regular expressions, learners will move on to the Spacy NLP library and its components such as stemming lemmatization, and speech tagging. Text classification techniques, including feature extraction and sentiment analysis, will also be covered.

The course will then delve into topic modelling techniques using NLTK, including non-negative matrix factorization and latent Dirichlet allocation. Learners will also gain an understanding of deep learning models such as RNN, LSTM, GRU, and their applications in natural language processing. The course will conclude with the building of a chatbot using Python.

By the end of this course, learners will have a solid foundation in natural language processing techniques using Python and will be able to apply these techniques to real-world applications such as sentiment analysis and chatbot development.

## Key Learning Objectives

- Learn the basics of Python text processing, including working with PDFs and regular expressions.
- Understand the Spacy NLP library and its components, such as stemming, lemmatization, stop words, and speech tagging.
- Explore text classification techniques and metrics, including feature extraction and sentiment analysis.
- Discover topic modelling techniques using NLTK, including non-negative matrix factorization and latent Dirichlet allocation.
- Gain an understanding of deep learning models such as RNN, LSTM, GRU, and their applications in natural language processing.
- Learn how to build a chatbot using Python.

## Course Curriculum

Lesson 1: Introduction & Setup  
Lesson 2: Downloading Anaconda & Python  
Lesson 3: Creating a Virtual Environment  
Lesson 4: Setup Google Colab  
Lesson 5: Python Text Basics  
Lesson 6: Working with PDFs  
Lesson 7: Regular Expressions  
Lesson 8: Spacy Setup and Overview  
Lesson 9: Stemming  
Lesson 10: Lemmatization  
Lesson 11: Stop Words  
Lesson 12: Phrase Matching  
Lesson 13: Speech Tagging  
Lesson 14: Sentence Segmentation  
Lesson 15: Part of Speech  
Lesson 16: Text Classification  
Lesson 17: Classification Metrics  
Lesson 18: Scikit Learn Primer  
Lesson 19: Text Feature Extraction  
Lesson 20: Text Classification  
Lesson 21: Semantics and Sentiment Analysis  
Lesson 22: NLTK  
Lesson 23: Topic Modelling  
Lesson 24: Non-Negative Matrix Factorization  
Lesson 25: Latent Dirichlet Allocation  
Lesson 26: Perceptron Model  
Lesson 27: Keras Basics  
Lesson 28: RNN  
Lesson 29: LSTM  
Lesson 30: GRU  
Lesson 31: Chatbots

# Comprehensive Assessment Approach

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. Multiple choice questions (MCQs) will be the standard form of assessment across all diploma courses. However, for certain individual courses, students may be required to deliver an oral presentation or participate in an interview. Additionally, after completing the entire diploma course, students will be required to present an oral presentation, which will be mandatory. This approach allows us to evaluate our students comprehensively and helps them develop essential skills for their future careers.



# EduQual Examinations:

Learners who are studying EduQual Level 3 and/or EduQual Level 4 diploma(s) will have to pay an examination fee as tabulated below.

Diploma	Total (£)
Diploma in Cloud Cyber Security (EduQual Level 3)	250*
DevOps and Cloud Advancement (EduQual Level 4)	250*
Diploma in SysOps and Cloud Advancement (EduQual Level 4)	250*
Diploma in Artificial Intelligence Advancement (EduQual Level 4)	250*

- **Learners will be required to pay the amount that is equal to the value of GBP (Great British Pound), and they should consult the current currency conversion rate to determine the amount in their local currency.**
- New learners must pay all examination fees of that respective diploma as soon as they are enrolled. Learners who are currently studying any advancement track can apply for a respective diploma by paying the examination fee of that respective diploma.
- Learners who successfully complete the EduQual Level 3 and/or Level 4 diplomas will be awarded a certificate by EduQual.
- Learners must provide accurate and up-to-date information during the application process as that information will be shared with the EduQual for awarding a certificate.
- Learners who paid full or yearly fees will get access to the full course contents of the diploma.



- Learners who paid half-yearly, quarterly, or monthly fees will get access to the course contents of the diploma as per the drip schedule defined in our LMS.
- All EduQual Level 3 and Level 4 diplomas will have content access for 12 months at most.
- Learners are responsible for ensuring that they have the necessary technology and resources to participate in the diploma.

## Assessments For EduQual Level 3 and EduQual Level 4 Diplomas

- The learner must appear for the exam within 1 year after registration with EduQual. If they don't appear for the exam within 1 year they have to again submit the examination fees.
- Learners enrolled in the EduQual level 4 Diploma may choose to take the EduQual level 3 Diploma exam, which is available as an option for all EduQual level 4 Diploma students.
- Learners must submit all assessments and coursework on time and to the required standard as per the diploma.
- Learners must follow the guidelines for academic integrity and avoid plagiarism or other forms of academic misconduct.
- Learners must attend all required classes and complete all assessments and coursework on time.

- **Assessment Formats**

- All customized courses in the diploma will include multiple-choice questions (MCQs) as part of the assessment.
- Some courses may also include coding assignments where applicable.
- The majority of courses will include oral presentations or interviews as part of the assessment.
- There will be a comprehensive exam covering the material from all courses in the diploma.

## • **Assessment Guidelines**

- Learners must follow the guidelines for each type of assessment as provided by Al Nafi in the specific assessment.
- Learners must complete all assessments honestly and to the best of their ability.
- Learners are responsible for ensuring that their work is original and not plagiarized from any other source

## • **Assessment Grading**

- The grading system for each type of assessment will be clearly explained in the course materials.
- Learners will be provided with feedback on their assessments and opportunities for improvement.
- The final grade for each course will be based on a combination of assessments.

## • **Oral Presentations/Interviews**

- Learners will be assessed on their ability to communicate effectively and demonstrate subject knowledge during oral presentations or interviews.
- The format and guidelines for oral presentations or interviews will be provided in the LMS.
- Learners must prepare and rehearse their presentations or interviews to ensure they meet the required standard.

## • **Coding Assignments**

- Learners in courses that include coding assignments must demonstrate their ability to write code that meets the requirements of the assignment.
- The coding assignments will be assessed based on factors such as functionality, readability, and efficiency.
- Learners must adhere to coding best practices and avoid plagiarism.

## • Comprehensive Exam

- The comprehensive exam will cover material from all courses in the diploma.
- The format and guidelines for the comprehensive exam will be provided in the LMS.
- Learners must prepare and review all course materials in advance of the comprehensive exam.

## • Assessment Grading

- The comprehensive exam will cover material from all courses in the diploma.
- The format and guidelines for the comprehensive exam will be provided in the LMS.
- Learners must prepare and review all course materials in advance of the comprehensive exam.
- Al Nafi reserves the right to investigate and take action in cases of academic misconduct, including plagiarism or cheating.
- Learners who engage in academic misconduct may be subject to penalties, including a failing grade or expulsion from the diploma program.

## • Changes to Assessment Guidelines

- Al Nafi reserve the right to modify the assessment guidelines at any time.
- Learners will be notified of any changes to the assessment guidelines via email or other communication channels.
- Learners who do not agree to the modified assessment guidelines must inform support and may be subject to different assessment guidelines or cancellation of enrollment.

# This track allows you to work in multiple industries

Features	
Accredited with EduQual	Yes
Access to Complete Course Content	Yes
Access to complete Hands On Labs	Yes
Resume Development	Yes
Interview Preparation	Yes
Internship Letter	Yes
Practice Exams	Yes
Live Sessions with Trainer	Yes
Multiple Languages	Yes

# Career Opportunities for this Track:

The demand for DevOps has been on the rise in the last 3 years. This track will cover all the major tools and best practices that are used by DevOps engineers all over the world. Dive right in.

1

## AI Engineer

Average salary:  
**\$125,000** per year

2

## Natural Language Processing Engineer

Average salary:  
**\$111,000** per year

3

## Robotics Engineer

Average salary:  
**\$100,000** per year

4

## Computer Vision Engineer

Average salary:  
**\$111,000** per year

5

## Machine Learning Engineer

Average salary:  
**\$150,000** per year

# Our students are working all over the globe in fortune 500 companies



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## Where Can I find more information?

### Headquarter (Canada)

**Canada: 64 Fullerton Crecent,  
L3R 3G5 Markham, ON, Canada.**

### Regional Office (Pakistan)

**Pakistan: A-163, Block 13-C, Gulshan-e-Iqbal,  
Karachi.**

### Contact

**+92 304 1110400**

**Send us a Message**

**info@alnafi.edu.pk**



**Visit: [www.alnafi.com](http://www.alnafi.com)**

