Information Technology Institute

AI and Machine Learning

People Develop Countries… We Develop P.E.O.P.L.E.

Program Admission Arrangement

Who May Apply?

- **Graduates of:**
  - **Engineering**
  - **Science (Computer Science, Statistics and Mathematics)**
  - **Computing and Informatics**
  - **Computing and Artificial Intelligence**
  - **Computing and Data Science**

Prerequisites

These topics will be discussed with you in the interviews (Resources applicants can visit or study before interview)

Probability & Statistics for Machine Learning & Data Science (https://www.coursera.org/learn/machine-learning-probability-and-statistics)
Mathematics (Calculus and Linear Algebra): MIT OpenCourseWare (Calculus – Linear Algebra)
Data Structures and Algorithms (https://www.coursera.org/specializations/data-structures-algorithms)
Database and SQL : https://maharatech.gov.eg/course/view.php?id=740
ITI values that could be found here: http:// www.iti.gov.eg/Site/AboutUs

Selection Process

- **Phase 1: IQ and Problem-Solving exam | English exam**
- **Phase 2: Technical Interview**
  Those applicants would be discussing with the interviewing panel their pre-work -"Before You Apply"- in a one-to-one interview
- **Phase 3: Interpersonal Skills Interview**
  Those how pass phase 3 will be promoted to this interview

Delivery Approach

- 75% face to face Learning| 25 % Online
- Common Hardware – Minimum Laptop specifications : (RAM: 8 (preferred 16), Core: i5 (preferred i7), HD: 500 or higher)
- Common Software

Students' Deliverables

- Each student must deliver at lest ONE **freelancing** job, Two AWS (Cloud Practitioner | ML Specialist) Badges and Graduation Project.

AI & Machine Learning

1 Programs Offered

☑ **Professional Training Program:**
- AI Engineer

☑ **Undergrads Summer Camps**

☑ **Online Services (MaharaTech, ITI Tech Leap)**

2 Industry/Academy Stakeholders

- Amazon
- Microsoft
- Datacamp
- Coursera

3 Targeted Outcome

- **Employability**
  - Vodafone Egypt
  - VOIS
  - Orange
  - Deloitte
  - Etisalat Misr
  - Softec
  - Giza Systems

4 Certifications

AWS Certified Machine Learning - Specialty Certification
AWS Certified Cloud Practitioner Certification
Microsoft Certified: Azure AI Engineer Associate

5 Graduates Job Profiles

AI Engineer
Design and develop artificial intelligence systems, creating algorithms and implementing machine learning models across various industries like healthcare and finance.

ML Engineer
ML engineers focus on gathering and preparing data, developing robust machine learning models, and deploying them for real-world applications, analyze data for predictive insights and informed decision-making. Ensure that the data infrastructure supports these models, optimizing for scalability, efficiency, and reliability.

Deep Learning Engineer
Design and deploy neural network models to solve complex problems, focusing on tasks like image, text and speech recognition.

MLOps Engineer
Streamline the deployment and management of machine learning models, ensuring they perform reliably in production environments.

Computer Vision Engineer
Develop algorithms and systems that enable machines to interpret visual information from images or videos.

NLP Engineer
Develop and implement algorithms for natural language processing tasks, such as text classification and sentiment analysis.

Generative AI Engineer
Design and develop generative AI systems, focusing on creating models that can generate new data.

Prompt Engineer
Optimize prompts to effectively interact models, ensuring the output is relevant and accurate.

AI & Machine Learning

1431 Hours

Program Content Structure

Fundamental courses

- Introduction to AI
- Linux Operating System
- Introduction to programming using C
- Introduction to Object Oriented Programming
- Database Fundamentals SQL
- Database Fundamentals NOSQL
- Python for Machine Learning
- Data Structure and Algorithmic Workshop
- Linear Algebra for Machine Learning
- Probability and Statistics for Machine Learning
- Agile Software Development Methodologies

Soft Skills Courses

- Progressive Teamwork (Workshop)
- Professional Demeanor (Workshop)
- Best Practices For Remote Working (Workshop)
- Communication Essentials for Professionals
- High Impact Presentations
- Job Seeking Skills

Core Courses

- Numerical Optimization and Algorithm For Machine Learning
- Data Exploration, Preparation and Visualization
- Random Search Optimization
- Machine Learning I : Supervised ML
- Machine Learning II: Bayesian & Unsupervised ML
- Machine Learning in production
- Reinforcement Learning
- Deep Learning
- Advanced Computer Vision
- Natural Language Processing and Large Language Models
- Generative AI and prompt Engineering
- Time Series Analysis and Forecasting
- Recommender Systems
- Cloud Infrastructure for Big Data
- Processing Big Data Tools
- Spark & Py-Spark for Big Data

Workshops

- Track Orientation Workshop
- Programming challenges and Kaggle competition
- Introduction to RPA
- Quantum Computing for Machine Learning