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Digital Pioneers
Academic CATALOG
2025

Contents

Introduction

Digital Pioneers includes 6 technology tracks that cover highly demanded jobs. Those tracks are:

1. SOFTWARE DEVELOPMENT
2. DIGITAL MARKETING & ART
3. AI & DATA SCIENCE
4. DATA ANALYTICS
5. INFRASTRUCTURE & SECURITY
6. APPLIED TECHNOLOGIES

Each technology track offers training courses for technologies used by many companies in that specific track, and each course covers a potential job opportunity (job profile). The objectives of studying each job profile are

- Provide trainees with the necessary technical background and experience needed to excel in specific technologies that match trainee's capabilities and aspirations. This includes all the necessary prerequisites.
- Guide trainees on how to develop a professional and product quality module.
- Explain different aspects of the product development life cycle (planning, design, development, integration, and testing) that help trainees succeed in job market.
- Involve trainees in hands-on experience and training that deepen their understanding of the introduced technologies.

SOFTWARE DEVELOPMENT TRACK

The software track offers training courses for several web development technologies (frontend/backend) across different platforms, mobile development, cloud application development, DevOps, and software testing.

Software Development

1. DevOps Specialist
2. Professional React Web Developer
3. Professional Mobile App Developer
4. Software Testing Specialist
5. Beginner Web Developer

SOFTWARE DEVELOPMENT TRACK

1. DevOps Specialist

A DevOps Specialist is responsible for smoothing the operation of a company's IT infrastructure. A DevOps Engineer's responsibilities are a combination of technical and management roles. DevOps Specialists build and set up new development tools and infrastructure, implement integrations requested by customers, deploy updates and fixes, develop scripts to automate visualization, design procedures for system troubleshooting and maintenance, and optimize software development processes. The technical study plan proposed for a DevOps Specialist is provided below:

Job Profile Content
Prompt Engineering
DevOps Foundations & Perquisites
Configuration Management using Ansible
CI/CD and Automation
Using Git for DevOps
Containerization basics using Docker
Docker Advanced
Continuous Integration using Jenkins
Introduction to Kubernetes
Continuous Monitoring using Prometheus
Infrastructure as Code & Security
Cloud for DevOps
Terraform
Application Deployment (Resource Dependencies,….)
Advanced DevOps & SRE
web server configurations
Python Essentials for MLOps
DevOps, DataOps, MLOps

SOFTWARE DEVELOPMENT TRACK

2.Professional React Web Developer

This profile is equipped with comprehensive knowledge of web development essentials such as HTML, CSS, and JavaScript, and specialized in building React applications. With proficiency in Git and GitHub for version control, NodeJS for server-side scripting, and an understanding of containerization with Docker and Kubernetes. The culmination of these skills is demonstrated in a capstone project, bringing React and NodeJS together to produce a real-world web application.

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
HTML5 Essentials
CSS Essentials
Principles of UX/UI Design
JavaScript
Typescript
Bootstrap
Getting Started with Git and GitHub
React
Code style, patterns and best practices
Introduction to Backend: NodeJS + Express
Containerization basics using Docker
Functional Documentation & Unit Testing
Advanced JavaScript: ES6+ and Beyond
React Advanced: Context API & Redux
Node.js Advanced: Asynchronous Programming
Express.js: REST APIs and Middleware
Capstone Project

SOFTWARE DEVELOPMENT TRACK

3. Professional Mobile App Developer

An android Mobile Application Developer is responsible for designing, developing, and maintaining an android mobile application. The courses in this profile cover a range of technologies that a Mobile Application Developer should have a strong understanding of and be able to use these technologies to design and develop native android, responsive and user-friendly mobile applications.

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
Java Fundamentals
Kotlin Programming
Android Material Design Components (MDC)
Android Compose
Android Security Essentials
UX/UI Basics
Getting Started with Git and GitHub
Functional Documentation & Unit Testing
Dart Fundamentals
Flutter Basics
Firebase
Capstone Project

SOFTWARE DEVELOPMENT TRACK

4. Software Testing Specialist

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
Java Programming Essentials: From Basics to Advanced
ISTQB Foundation: Fundamentals of Software Testing (Version 4)
Comprehensive Guide to Testing Throughout the Software Development Lifecycle (ISTQB 4)
Static Testing & Code Review Techniques Using Jira
Test Management for Databases
API Test Automation & Scripting with REST Assured & Postman
Test Management for Databases
Hands-on Automation Testing with Selenium & Postman
Performance & Load Testing Essentials with JMeter & Locust
CI/CD for Test Automation: Jenkins & GitHub Actions
Advanced Topics in Software Testing: AI-driven and Risk-based Testing
Cloud & SaaS Testing: Strategies and Best Practices
AI & Machine Learning Testing
Capstone Project

SOFTWARE DEVELOPMENT TRACK

5. Beginner Web Developer

This profile is equipped with basic knowledge of web development essentials such as HTML, CSS, and JavaScript, and building Web applications with React and NodeJS. With knowledge in Git and GitHub for version control, NodeJS. The culmination of these skills is demonstrated in a capstone project, bringing React and NodeJS together to produce a real-world web application. The technical study plan proposed for this job profile is provided below:

Course Contents
Prompt Engineer
HTML5 Essentials
CSS Essentials
Principles of UX/UI Design
JavaScript Fundamentals
TypeScript
Bootstrap
React
Introduction to Backend: NodeJS + Express
Code style, patterns and best practices
Containerization basics using Docker
Functional Documentation & Unit Testing
Getting Started with Git and GitHub
Capstone project

DIGITAL MARKETING & ARTS TRACK

This track offers a focused exploration of the dynamic world of digital media, empowering you to specialize in one of three exciting and in-demand fields. You can delve into the art of media production, mastering video and sound editing, motion graphics, and visual effects to create compelling content for various platforms. Alternatively, you can focus on user interface and user experience design principles, learning to craft intuitive and engaging digital experiences. Or, you can specialize in the strategies and tactics of digital marketing, from campaign creation and optimization to content strategy and website management.

Digital Marketing & Arts

1. Digital Media Production Specialist
2. UI/UX Professional Designer
3. Digital Marketing Specialist
4. Graphic Design Specialist

By the completion of your chosen job profile within this track, you will have:

- **Digital Media Production Specialist:** The technical skills to produce high-quality video and audio content, incorporating graphics, animation, and special effects.
- **UI/UX Professional Designer:** The design thinking skills to create user-centered interfaces and experiences for websites, apps, and other interactive media.
- **Digital Marketing Specialist:** The marketing expertise to develop and execute effective digital marketing campaigns, driving engagement and achieving business objectives.

- **Graphic Design Specialist:** The art and practice of visual communication, employing creative software and design principles to produce impactful imagery for diverse media, conveying messages and enhancing user experiences.

DIGITAL MARKETING & ARTS TRACK

1. Digital Marketing Specialist

Description: Digital Marketing Specialists are responsible for Creating and Executing Digital Marketing Campaigns, Developing Visual Assets for Digital Campaigns, Administering Websites & Publish Content, Monitoring & Optimizing Marketing Campaigns and Ad Copywriting & Content Creation.

The technical study plan proposed for this job profile is provided below:

Contents
Computer & Computing Fundamentals
Design Principles
Foundations of Marketing
Foundations of Digital Marketing
Content Marketing & Content Strategy Development
Social Media Marketing (Facebook, Instagram Threads, X, LinkedIn, TikTok, Snapchat, YouTube)
Search Engine Optimization
Email Marketing
Google Ads
Mobile Marketing
Customer Relation Management for Digital Marketing
Performance Measurement & Reporting
Affiliate Marketing
Allocating Budget
Digital Transformation
Prompt Engineer
Planning & Capstone Project

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DIGITAL MARKETING & ARTS TRACK

2. UI/UX Professional Specialist

UI & UX designers create the user interface for an app, website, or other interactive media. Their work includes collaborating with product managers and engineers to gather requirements from users before designing ideas that can be communicated using storyboards. They also process flows or sitemaps.

The technical study plan proposed for this job profile is provided below:

Contents
Computer & Computing Fundamentals
Design Principles
UI-UX Fundamentals
Adobe Photoshop (for Web)
Adobe Illustrator (for Web)
Applying UI-UX using Adobe XD
Figma
Prompt Engineering
Capstone Project

DIGITAL MARKETING & ARTS TRACK

3. Digital Media Production Specialist

A skilled professional in video and sound editing, including media management and archiving. They create and insert static and motion graphics, add music/voice-overs, and work with animation, audio, and visual effects to produce dynamic content for TV, internet, and film, collaborating with creative teams to integrate design elements.

The technical study plan proposed for this job profile is provided below:

Contents
Computer & Computing Fundamentals
Design Principles
Videography Fundamentals and Camera Techniques
Adobe Photoshop for Media Production
Adobe Illustrator for Motion
Adobe Premiere Basics and Advanced Editing Techniques
Adobe After effect Animating
Element 3D
Adobe Audition
Adobe Character Animator
Prompt Engineering
Capstone Project

DIGITAL MARKETING & ARTS TRACK

4. Graphic Design Specialist

Learn to create impactful visuals with this course on Adobe's design software. You'll master Photoshop, Illustrator, and InDesign, gaining skills in photo editing, vector art, and layout design. We'll also cover advanced techniques like typography and 3D integration. Build a portfolio and learn to communicate effectively through visual projects.

The technical study plan proposed for this job profile is provided below:

Contents
Computer & Computing Fundamentals
Design Principles
Adobe Photoshop
Adobe Illustrator
Adobe InDesign
Adobe Dimension
Prompt Engineering
Capstone Project

AI & DATA SCIENCE TRACK

This track primarily focuses on applying data science and machine learning techniques to solve real-world challenges and problems and get familiar with a wide range of topics related to this field, for example: machine learning, deep learning, language processing, and others.

By the completion of the course, you will have
- The practical experience needed to use artificial intelligence to solve problems.
- The ability to deal with data in its various forms, collect it, extract data in appropriate forms that fit processing requirements.
- The ability to understand and analyze data, and extract important information from it, and thus provide recommendations to companies in various fields.
- Effectively implement and manage large-scale and complex AI projects.
- The ability to evaluate and analyze problems as well as propose solutions related to the development of artificial intelligence systems.

AI & DATA SCIENCE

1. Data Engineering Specialist
2. Professional Big Data Engineer
3. Machine learning Developer

AI & DATA SCIENCE TRACK

1. Data Engineering Specialist

Microsoft Data Engineer learns how to use Microsoft tools for data management and processing. He/she should be experienced in SQL, Microsoft Azure platform.

The technical study plan proposed for this job profile is provided below:

Contents
What is Data Science?
Tools for Data Science
Data Science Methodology
Python Programming Fundamentals
Python Programming
Data Science with Python
Python Project for Data Science
Data Analysis with Python
Data Visualization with Python
SQL Essentials
Implementing a SQL Data Warehouse
Databases and SQL for Data Science with Python
Azure Data Fundamentals
Azure Data Engineer Associate
Capstone Projects

AI & DATA SCIENCE TRACK

2. Professional Big Data Engineer

Using Huawei technology mainly, Huawei Big Data Engineer designs software, programs and algorithms that help to deal with data and big data and take actions independently without receiving direction to perform these specific tasks.

The technical study plan proposed for this job profile is provided below:

Contents
Python Programming Fundamentals
What is a Big Data Engineer?
HCIA-Big Data Training
HCIP-Big Data Developer Training
HCIE-Big Data-Data Mining Training
Capstone Project

AI & DATA SCIENCE TRACK

3. Machine Learning Developer

Trainees will learn how to use AI technology to translate the raw data gathered from various data pipelines into data science models that can be applied and scaled as needed. In addition, they will also develop algorithms and build programs that enable machines, computers to process incoming data and identify patterns.

The technical study plan proposed for this job profile is provided below:

Contents
Math (Statistics and Linear Algebra Basics)
Python Programming
Python for Data Science, AI & Development
Data Analysis with Python
Data Visualization with Python
Preprocessing & Visualization
Machine Learning Techniques
Deep Learning
Natural Language Processing with Attention Models
Computer Vision and Transfer Learning
Generative Models, LLM, GANs, and Hugging Face
Azure AI Fundamentals
Azure AI Engineer Associate
MLOps Tools, MLflow
Capstone Projects

DATA ANALYTICS TRACK

Data analysis aims at getting useful insights using the given data to support the process of decision making. The field of data analysis has witnessed great importance in recent years due to the boom in technology and the availability of advanced tools and techniques that help provide better results and solutions to various organizations.

The educational objectives of the program are:
- Learning different ways of analyzing data.
- Applying statistical models and modern data science tools to understand and analyze data and solve business problems.
- Studying machine learning algorithms to make the right decisions and meet the challenges of modern business.
- Acquiring different skills, tools, and methodologies to explore past business performance and drive future planning.

Data Analytics

1. Professional Data Analyst
2. Junior Data Analyst

DATA ANALYTICS TRACK

1. Professional Data Analyst

A data analyst specialist is responsible for analyzing data and extracting useful insights from large amounts of data using a variety of tools and techniques. A data analyst's roles and responsibilities are a combination of technical and management roles. Google Data analysts visualize data and prepare reports on data findings, review data quality to identify possible sources of error, consult with management on potential changes to business processes, recommend further changes to data models or data structures, identify patterns and trends in data using data mining and statistical analysis software, and recommend improvements in the products and services to achieve customer satisfaction and preferences.

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
Foundations of Data and Data Analytics
Make Data-Driven Decisions
Data Preparation for Exploration using Python
Data Cleaning Process and Organization of Data using SQL
Data Analysis to Answer Questions
Data Visualization using Tableau
Data Governance
Capstone Project 1
Introduction to Power BI
Extract Data from Different Sources in Power BI
Data Cleaning using PowerQuery
Introduction to DAX
Data Analysis and Visualization using Power BI
Dashboard and Report Development in Power BI
Data Modeling and Integration in Power BI

Publishing & Sharing Power BI Report
Data Refresh Mechanisms in Power BI
Visualization using Tableau
Data Governance
Capstone Project 2

DATA ANALYTICS TRACK

2. Junior Data Analyst

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
Introduction to Data Analysis & Data-Driven Decisions
Introduction to Power BI
Extract Data from Different Sources in Power BI
Data Cleaning using PowerQuery
Introduction to DAX
Data Analysis and Visualization using Power BI
Dashboard and Report Development in Power BI
Data Modeling and Integration in Power BI
Publishing & Sharing Power BI Report
Data Refresh Mechanisms in Power BI
Visualization using Tableau
Data Governance

INFRASTRUCTURE & SECURITY TRACK

With the increase in the use of the Internet in the tasks of our daily lives (such as electronic banking services, online shopping, social media, etc.), personal data has become increasingly vulnerable to electronic attacks, as attackers use modern methods and technologies to overcome traditional security controls. This is why cyber security has become an important field and is in high demand.

The cyber security track includes the techniques and mechanisms for ensuring the security of computer systems, data, and networks and protecting them from various electronic attacks.

The educational objectives of the program are:

1. Developing the manpower required to protect Egypt from electronic threats, while ensuring that security priorities are aligned with the country's work needs and strategies
2. Empowering graduates with the technical knowledge and skills necessary to protect and defend computer systems and networks
3. Develop graduates who are able to identify, analyze, and remedy computer security breaches
4. Develop graduates who can plan, implement and monitor cyber security mechanisms to help ensure that IT assets are protected.

INFRASTRUCTURE AND SECURITY

1. Cisco Network Administration Professional
2. Network Administration Specialist
3. Cisco Cybersecurity Professional
4. Vulnerability Analysis & Penetration Testing Professional

INFRASTRUCTURE & SECURITY TRACK

1. Cisco Network Administration Professional

A Cisco Network Administrator is capable of the following using Cisco technologies; Designing, installing, configuring, and maintaining Cisco network devices, such as routers, switches, firewalls, access points, etc., Troubleshooting and resolving network issues, such as connectivity, performance, security, etc., Monitoring and optimizing network performance and availability using various tools and methods, Implementing and enforcing network security policies and standards, such as encryption, authentication, authorization, etc., Updating and upgrading network software and hardware in accordance with best practices and company procedures, Documenting and reporting network configuration, status, and changes, Providing technical support and guidance to network users and other IT staff, and Collaborating with other network engineers, administrators, vendors, and stakeholders on network projects and initiatives

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
Cisco CCNA Routing and Switching (200-301 CCNA)
Cisco CCNP Enterprise (350-401 ENCOR)

INFRASTRUCTURE & SECURITY TRACK

2. Network Administration Specialist

As a motivated and detail-oriented Junior Network Administrator, this profile brings a solid foundation in IT infrastructure and network management, supported by industry-recognized certifications including Cisco and Huawei technologies. These certifications are equipped with a comprehensive understanding of hardware, software, networking, and server administration, enabling them to effectively troubleshoot, maintain, and optimize IT systems. With hands-on experience in configuring networks, managing server environments, and ensuring system security.

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
Cisco CCNA Routing and Switching (200-301 CCNA)
HCIA Datacom

INFRASTRUCTURE & SECURITY TRACK

3. Cisco Cybersecurity Professional

A Cisco Cybersecurity Engineer is capable of the following using Cisco technologies; Planning, implementing, managing, monitoring, and upgrading security measures for the protection of the organization's data, systems, and networks, Troubleshooting security and network problems and responding to all system and/or network security breaches, Configuring and implementing intrusion detection systems and firewalls, Maintaining firewalls, virtual private networks, web protocols, and email security, Creating virus and threat detection systems and performing vulnerability and risk assessments, Testing and checking the system for weaknesses in software and hardware, Developing and implementing security policies and standards, such as encryption, authentication, authorization, etc., Updating and upgrading security software and hardware in accordance with best practices and company procedures, Documenting and reporting security configuration, status, and incidents, Providing technical support and guidance to security users and other IT staff, and Collaborating with other security engineers, administrators, vendors, and stakeholders on security projects and initiatives

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
Cisco CCNA Routing and Switching (200-301 CCNA)
Cisco CyberOps Associate (200-201 CBROPS)

INFRASTRUCTURE & SECURITY TRACK

4. Vulnerability Analysis & Penetration Testing Professional

A Vulnerability Analyst / Penetration Tester is capable of the following; Ensuring that all Network security tests are conducted within the framework set by Mastercard, Ensure that all test cases and tools are used appropriately for testing various network segment types, Ensuring that all help and guidance is provided to development teams on the vulnerabilities identified in their applications while performing security testing, Identify improvement areas in the security testing domain and implement learnings for the Globally located team, Coordinate with application development teams on their demands for security testing and provide a seamless experience with testing and reporting of penetration tests, and Working with a global team spread across time-zones and geographies.

The technical study plan proposed for this job profile is provided below:

Contents
Prompt Engineering
Intro to Penetration Testing & Red Team Operations
Reconnaissance
Scanning & Research
Gaining Access
Maintaining Access
Covering Tracks & Reporting

Prerequisite:
- Network basics

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APPLIED TECHNOLOGIES TRACK

Applied Technologies

1. Agriculture Tech Specialist

TECHNOLOGY SPECIALTY TRACK

1. Agriculture Tech Specialist

In today's rapidly evolving agricultural landscape, digital skills are essential for maximizing efficiency, sustainability, and innovation. The Technology for Agriculture Program is designed to equip agriculture graduates with the latest digital tools and technologies, enabling them to harness data analytics, precision farming, and smart agricultural solutions. Additionally, trainees will get introduced to GIS mapping, IoT applications, farm management software, and data-driven decision-making, and they will gain practical expertise to thrive in modern agribusiness. All in all, this program is intended to bridge the gap between traditional agriculture and the digital future!

The technical study plan proposed for this job profile is provided below:

Course Contents
Agriculture Foundation
Introduction to Digital Agriculture
Precision Agriculture & Smart Farming (Farming Sector Graduates)
Digital Tools in Crop Farming (Farming Sector Graduates)
Livestock Management Technologies (Livestock Sector Graduates)
Poultry Management Technologies (Livestock Sector Graduates)
Digital Aquaculture & Smart Fish Farming (Aquaculture Sector Graduates)
Sustainable & Climate-Smart Agriculture
Agribusiness, E-Commerce & Digital Marketing for Farmers
Hands-on Capstone Project & Field Implementation
الإدارة المناخية للقطاع الزراعي (القطاع الزراعي)
الإنذار المبكر (القطاع الزراعي)
النظام الزراعي الخبير (القطاع الزراعي)
شهادات التصدير للمنتج الزراعي (القطاع الزراعي)
المحاكاة والتنبؤ بالإنتاجية (القطاع الزراعي)
التصميم والتخطيط الزراعي (القطاع الزراعي)

الري الذكي وتقدير الاحتياجات المائية للمحاصيل (القطاع الزراعي)
تصميم شبكات الري الحديثة (القطاع الزراعي)
المشاتل والزراعات المحمية المتحكم بها كلياً (القطاع الزراعي)
الزراعة الذكية بدون تربة (القطاع الزراعي)
الاستدامة وتدوير المخلفات الزراعية الآمن (القطاع الزراعي)
زراعات عيش الغراب (القطاع الزراعي)
تركيب العلائق الآلي (المعتمد على المكونات المحلية) (القطاع الحيواني)