Postgraduate Diploma
Android Development

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Postgraduate Diploma
Android Development

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/pk/information-technology/postgraduate-diploma/postgraduate-diploma-android-development

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01

Introduction

With the advent of 5G communications and the widespread presence of mobile devices and connected elements, Android is undoubtedly one of the key elements of the current technological ecosystem. Gradually, we are reaching levels of processing and speed far superior to those previously achieved, which leads to new and spectacular applications using virtual and augmented reality where Android demonstrates its versatility. Therefore, it is necessary to understand the different programming languages and the tools available to generate profitable apps. All this and more will be available in this full online 6-moth program with exclusive content selected by experts.

If you want to specialize in the field of Mobile Application Development, delving into its Life Cycle and Design. This program is for you"

The spectacular proliferation of mobile devices with a multitude of applications would not have been possible without the existence of the Android Operating System. Today, everyday life would be difficult to imagine without many of the applications and services that exist on this platform. The existence of this small piece of technology that resides in most phones and other devices has become a must-have.

New generations of connected devices include high graphic capabilities, bluetooth and NFC connectivity. GPS location services, among other benefits, which means that all the applications developed on them can make use of structural elements that were unthinkable just twenty years ago and that provide the user with endless new possibilities.

For this reason, it is necessary to go deeper into the structural elements that make up an Android architecture and how they are related in order to understand how to build and program it. These considerations must be taken into account when designing these new systems and making the most of their capabilities in all areas.

Although Java was the recommended development language for this operating system in its beginnings, the appearance of Kotlin has changed the situation. Kotlin is very popular among Android developers and has a large ecosystem of compatible libraries and tools. Therefore, it is of great interest and is becoming a requirement for Android developers to be familiar with the language and its capabilities.

For this purpose, this Postgraduate Diploma in Android Development is available, with the best content selected exhaustively by the team of specialists in charge of its direction. Sharing their experiences online, through a modern virtual campus and the most avant-garde methodology. In a variety of formats and with the possibility of downloading for consultation when necessary. Applying the Relearning methodology that allows the reiteration of concepts and practical cases, generating an agile and efficient learning process.

This **Postgraduate Diploma in Android Development** contains the most complete and up-to-date program on the market. The most important features include:

- Practical cases presented by experts in Android Application Development
- The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used to improve learning.
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions for experts and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection

Be an expert in the Kotlin programming language, designed for Android applications, and the necessary development tools"

Labor market reports confirm the growing demand for expert profiles in mobile application design. This is your chance. Enroll now"

TECH brings you a program with exclusive content. 100% online and with the most avant-garde methodology.

It is not easy to find professionals who know the Android programming language. Stand out and build a better professional profile with this Postgraduate Diploma.

The program's teaching staff includes professionals from the sector who contribute their work experience to this program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive knowledge programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

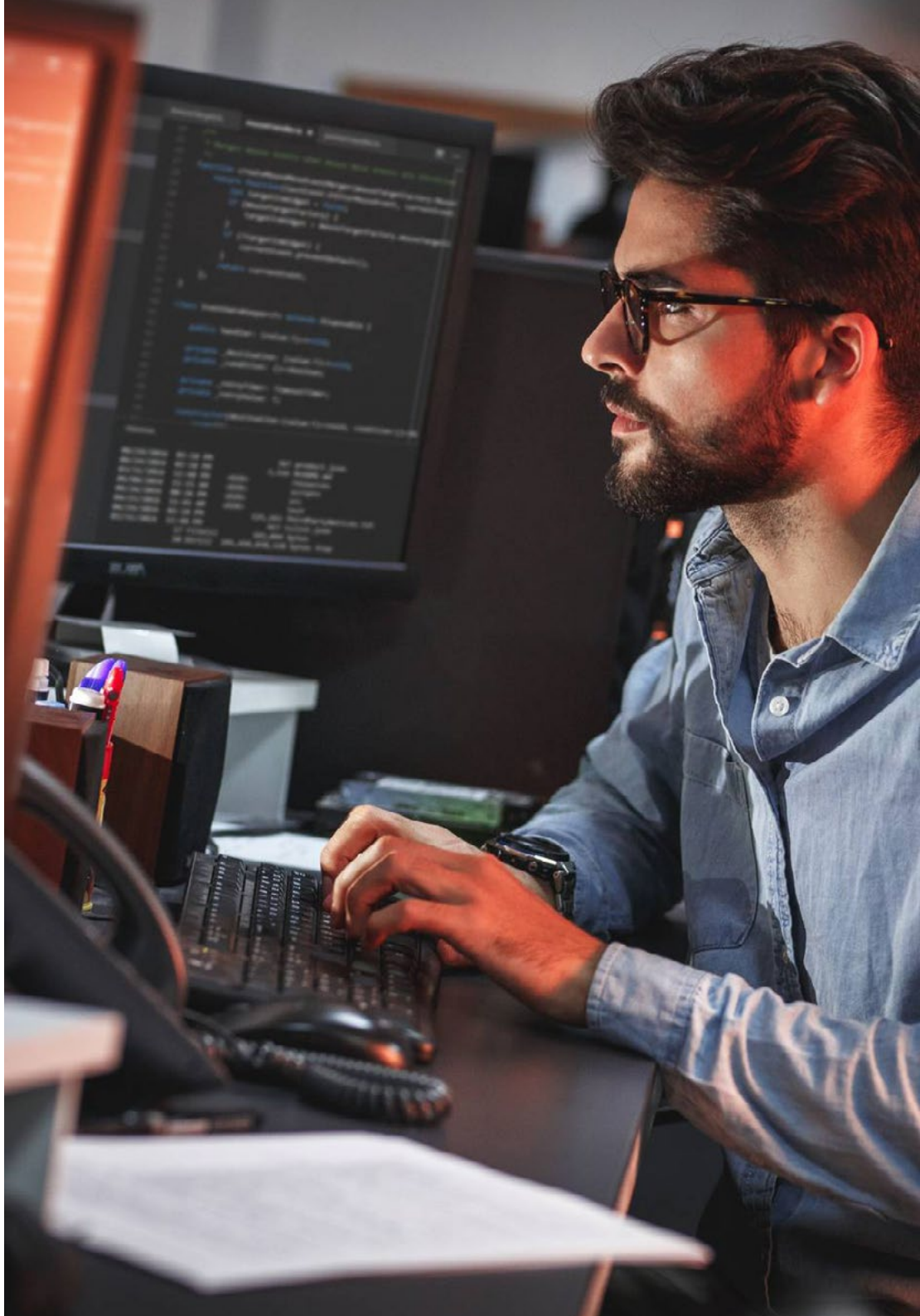
With this Postgraduate Diploma, the professional will gain the knowledge and master the necessary techniques to understand the programming languages in the Android Operating System, going through examining the Linux kernel, compiling the differential features and capabilities of the Kotlin Language, as well as advanced Kotlin, its genericity, functional programming and parallelism. Achieving the excellence and specialization required in a constantly growing and evolving market. Opening doors to infinite possibilities within Android Development.

In just 6 months and from the comfort of your laptop. You will be able to graduate with this Postgraduate Diploma in Android Development. Start now"

General Objectives

- Determine the structural elements of an Android system
- Establish how to create styles and themes including virtual reality through Layouts
- Analyze the different forms of code flow management in Kotlin
- Develop advanced capabilities and best practices in application development in the Kotlin programming language
- Develop a methodology for optimal data management on the device
- Analyze use cases for Android devices on the market

Get to know the Kotlin language for Android Application Development by delving into its most important techniques"



Specific Objectives

Module 1. Android Programming Language

- Examine the Linux kernel and virtual machine on the Android base
- Analyze native system libraries
- Establish the benefits of Android over other platforms
- Determining the elements of an Android application
- Introduce Android versions and their enhancements
- Evaluate the market for Android applications
- Fundamentals of Android's future evolution

Module 2. Programming Language in Android Applications Kotlin

- Develop the Kotlin programming language
- Compile the features and differential capabilities of the Kotlin language
- Examine the basic execution model of a Kotlin program
- Analyze the language syntax and program structure of a Kotlin program
- Specify the model of types and variables in Kotlin
- Establish the various forms of code flow management in Kotlin
- Determine the model of classes, collections and objects in Kotlin
- Generate specialized knowledge about the inheritance model in Kotlin
- Specify the exception and null type management model in Kotlin

Module 3. Programming Language in Android Applications Advanced Kotlin Genericity, Functional Programming and Parallelism

- Examine the covariant and contravariant genericity model in Kotlin
- Analyze Kotlin's functional programming model with Lambdas
- Define Kotlin's higher order functions
- Develop extensions and companion objects in Kotlin
- Examine the use of the delegation pattern in Kotlin
- Compile annotations and reflection in Kotlin
- Delve into the testing model in Kotlin
- Establish the different asynchronous programming models available in Kotlin
- Determine the Kotlin coroutines model
- Compile the various libraries and utility tools of the Kotlin ecosystem

03

Course Management

Outstanding professionals in the field of new technologies, solution architecture and digital infrastructure, experts in Android programming and application developers lead this Postgraduate Diploma. Those who are committed to optimizing the learning process of students, who seek in this program the contribution they need for their professional success. Therefore, they advise and accompany the students throughout the process with TECH's exclusive virtual platform.

A team of active expert teachers will guide you in this Postgraduate Diploma. This translates into up-to-date experiences and cutting-edge ideas"

International Guest Director

Colin Lee is a **successful mobile application developer**, specializing in **native Android code**, whose influence extends internationally. The Postgraduate Diploma is an **authority in the Twin Cities area and in the handling of Kotlin**. One of his most recent contributions was to demonstrate, in live code, how to **quickly build a browser** using the aforementioned programming language and Mozilla's open source browser components for Android.

In addition, his applications have been linked to globally significant companies. For example, he was in charge of **creating digital solutions for Pearson**, one of the largest international publishers. He also developed a low-level Android video recorder for the startup Flipgrid, later acquired by Microsoft.

He also built a successful Android VPN for a large **client in the consulting world**. In turn, he is the creator of a freight management tool implemented by the transnational **Amazon** to facilitate the work of its contracted truckers. On the other hand, he has helped build the **mobile versions of the Firefox browser** for Mozilla.

Today, he performs work as a contractor, including **code reviews and security checks**. His impact on mobile application development and his experience over the years make him a leading figure in the global technology arena.

Mr. Lee, Colin

- Director at ColinTheShots LLC
- Android Software Engineer for Specto Inc.
- Senior Android Engineer for Mozilla
- Software Development Engineer for Amazon
- Mobile Application Engineer for Flipgrid
- Software Configuration Specialist for Pearson VUE
- Bachelor's Degree from the University of Florida

Thanks to TECH you will be able to learn with the best professionals in the world"

Management

Mr. Olalla Bonal, Martín

- Current Blockchain Technical Specialist at IBM SPGI
- Digital Electronics Technician
- Blockchain Architect
- Infrastructure Architect in Banking
- Hyperledger Fabric training to companies
- Business-oriented companies Blockchain training
- Project management and implementation of solutions
- More than 25 years of experience in the IT world

Professors

Mr. Villot Guisán, Pablo

- Cloud Architect, Exponential Solutions and Subject Mater Expert Blockchain at KPMG
- Cloud Architect, Exponential Solutions and Subject Mater Expert Blockchain Integration at Everis
- Developer and Technical Manager of web and heavy desktop applications for the Commercial Logistics area of Inditex, Connectis.
- Degree in Computer Engineering from the University of La Coruña
- Microsoft MSCA certification: Cloud Platform

04

Structure and Content

This program has been designed by working professionals who understand the current reality and future trends of Android Application Development operating systems. There are 3 modules that perfectly teach the different programming languages and how they work, for good Android development. From module 1, the technique and deep knowledge of the subject is evident and can be mastered to perfection in 6 months. Obtain a 100% online qualification thanks to the *Relearning* methodology that allows the rapid learning of exclusive and downloadable content from the virtual campus for greater convenience and efficiency in the program.

A 100% online program. With the most exclusive content designed for you, by experts"

Module 1. Android Programming Language

1.1. Android Platform
- 1.1.1. Android Platform
- 1.1.2. Android Operating System
- 1.1.3. Open Handset Alliance in Android development

1.2. Android Architecture
- 1.2.1. Architectural Elements of an Android System
- 1.2.2. Communication between Elements
- 1.2.3. Extensibility of the Android Architecture
- 1.2.4. Machine Resource Management: Battery and Memory
- 1.2.5. Android Emulators

1.3. Android Linux Kernel
- 1.3.1. Composition of the Kernel
- 1.3.2. Structural Elements of the Kernel
- 1.3.3. Dalvik Virtual Machine
- 1.3.4. The Android Runtime Virtual Machine (ART)

1.4. Native Android Libraries
- 1.4.1. Native Android Libraries
- 1.4.2. Support Library
- 1.4.3. Native Libraries and Extensibility

1.5. The Android File and Data System
- 1.5.1. Structure of a Typical Android Application
- 1.5.2. YAFFS2 and ext4 File System
- 1.5.3. Use of SQLite and Room for Data Management

1.6. Android Security
- 1.6.1. Permission Systems
- 1.6.2 Digital Signatures in the Android Application Package (apk)
- 1.6.3. Execution of Processes in the Kernel
- 1.6.4. Execution Threads and Events

1.7. Structural Components of a Standard Application
- 1.7.1. View
- 1.7.2. Activity
- 1.7.3. Fragment
- 1.7.4. Service
- 1.7.5. Intent
- 1.7.6. Broadcasts Receiver and Content Provider
- 1.7.7. Data Management and User Preferences

1.8. Android Versions
- 1.8.1. Android Versions
- 1.8.2. Deployment of Android Versions
- 1.8.3. Dispersion of Android Distributions
- 1.8.4. Android vs. Apple iOS and Other Mobile Systems

1.9. Android for Vehicles
- 1.9.1. Android and the Automotive World
- 1.9.2. Structural Elements in an Automotive Android System
- 1.9.3. Communication between Devices

1.10. Android in Home Automation, Wearables and Internet of Things (IoT)
- 1.10.1. The Connected World
- 1.10.2. Structural Elements in an Android Home Automation System
- 1.10.3. Elements of Android Wearable
- 1.10.4. Android in the Internet of Things (IoT)

Module 2. Programming Language in Android Applications Kotlin

2.1. Kotlin Programming Language
- 2.1.1. Kotlin Programming Language
- 2.1.2. Kotlin Programming Language. Features
- 2.1.3. Running a Program in Kotlin

2.2. Programming in Kotlin
- 2.2.1. Structure of a Program in Kotlin
- 2.2.2. Reserved Words and Syntax
- 2.2.3. Write through Console and Read User Inputs – Hello World

2.3. Types and Variables in Kotlin
- 2.3.1. Types and Variables in Kotlin
- 2.3.2. Variable Declaration: Var vs. Val
- 2.3.3. Operators
- 2.3.4. Type Conversion
- 2.3.5. Arrays

2.4. Flow Control in Kotlin
- 2.4.1. Flow Control
- 2.4.2. Conditional Expressions
- 2.4.3. Loops

2.5. Functions in Kotlin
- 2.5.1. Functions in Kotlin
- 2.5.2. Structure of a Function
- 2.5.3. Scope Functions

2.6. Types and Objects in Kotlin
- 2.6.1. Types and Objects in Kotlin
- 2.6.2. Classes
- 2.6.3. Objects
- 2.6.4. Constructors and Property Initialization
- 2.6.5. Nested Classes and Inner Classes
- 2.6.6. Data Classes

2.7. Kotlin Inheritance
- 2.7.1. Inheritance
- 2.7.2. Superclasses and Subclasses
- 2.7.3. Overwriting Properties and Functions
- 2.7.4. Inheritance vs. Other Types of Relationship between Classes
- 2.7.5. Sealed Classes
- 2.7.6. Listed

2.8. Abstract Classes and Interfaces in Kotlin
- 2.8.1. Abstract Classes and Interfaces
- 2.8.2. Abstract Classes
- 2.8.3. Interfaces
- 2.8.4. Validation and Conversion of Operator Types - Is, When, As

2.9. Kotlin Collections
- 2.9.1. Kotlin Collections
- 2.9.2. List
- 2.9.3. Set
- 2.9.4. Map

2.10. Exception and Null Value Handling in Kotlin
- 2.10.1. Exception and Null Value Handling
- 2.10.2. Null Value, Nullable and Non-Nullable Types
- 2.10.3. Exceptions

Module 3. Programming Language in Android Applications Advanced
Kotlin Genericity, Functional Programming and Parallelism

3.1. Genericity in Kotlin
- 3.1.1. Genericity in Kotlin
- 3.1.2. Genericity in Collections, Functions, Classes and Interfaces
- 3.1.3. Covariance and Contravariance: Out or In

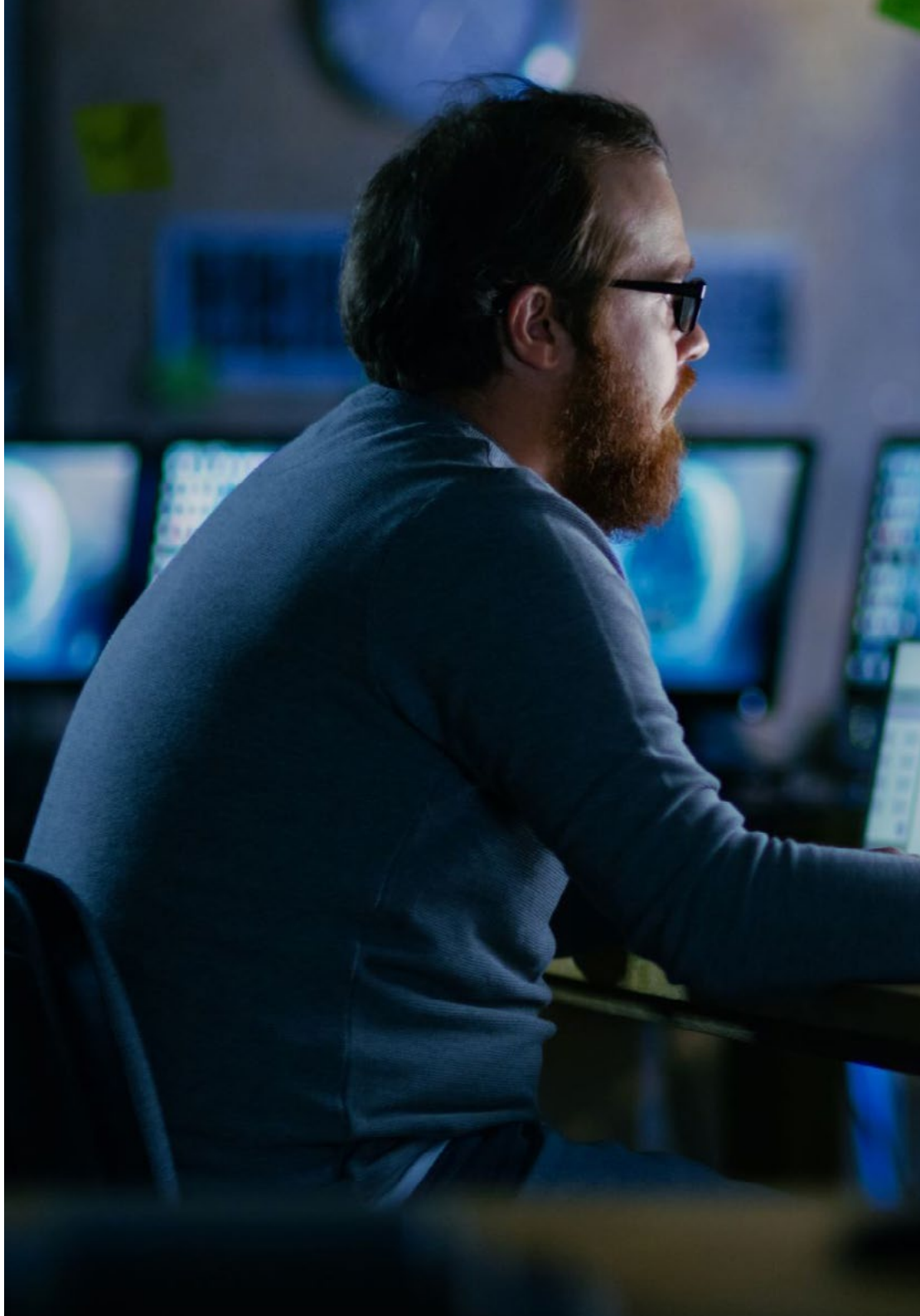
3.2. Lambda Functions in Kotlin
- 3.2.1. Lambda Functions
- 3.2.2. Structure of a Lambda Function
- 3.2.3. Use of Lambda Functions

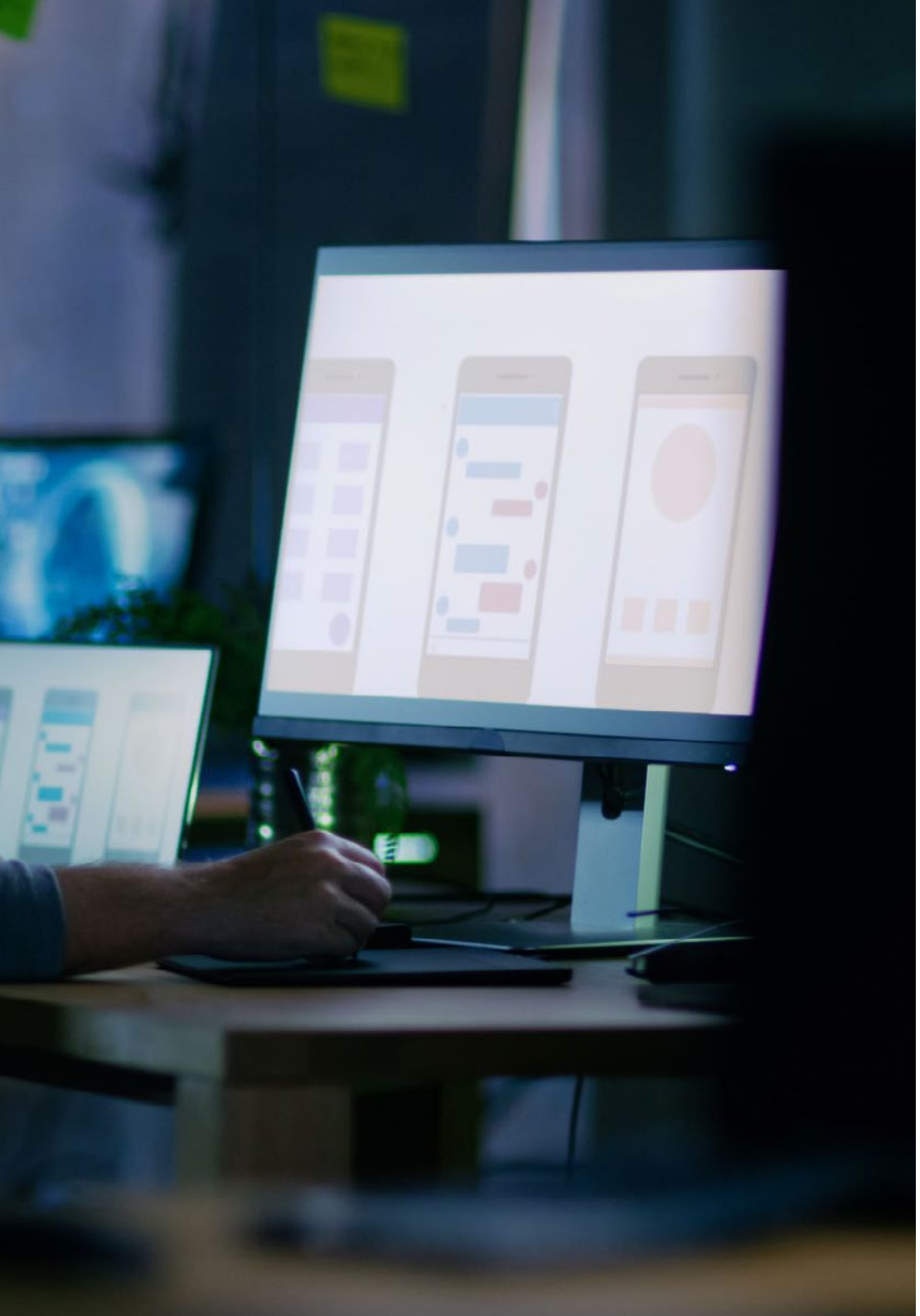
3.3. Higher Order Functions in Kotlin
- 3.3.1. Higher Order Functions
- 3.3.2. Standard Kotlin Higher-Order Functions
- 3.3.3. Linking Function Calls

3.4. Kotlin Extensions
- 3.4.1. Kotlin Extensions
- 3.4.2. Extension Functions
- 3.4.3. Extension Properties
- 3.4.4. Accompanying Objects

3.5. Delegation Pattern in Kotlin
- 3.5.1. Delegation Pattern
- 3.5.2. Delegation in Kotlin
- 3.5.3. Delegated Properties

3.6. Annotations and Reflection in Kotlin
- 3.6.1. Annotations and Reflection
- 3.6.2. Annotations in Kotlin
- 3.6.3. Reflection in Kotlin





3.7. Testing in Kotlin
- 3.7.1. Testing in Kotlin
- 3.7.2. Kotlin Testing Frameworks and Libraries
- 3.7.3. Kotest

3.8. Asynchronous Programming in Kotlin
- 3.8.1. Asynchronous Programming
- 3.8.2. Asynchronous Programming Techniques in Kotlin
- 3.8.3. Comparative Programming Techniques

3.9. Coroutine in Kotlin
- 3.9.1. Coroutines
- 3.9.2. Channels
- 3.9.3. Context and Dispatchers
- 3.9.4. Shared State and Concurrency
- 3.9.5. Exception Handling in Coroutines

3.10. Kotlin Ecosystem
- 3.10.1. Kotlin Ecosystem
- 3.10.2. Libraries for Kotlin
- 3.10.3. Tools for Kotlin

Enroll now and get to know all the advantages of TECH's methodological system"

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the course, students will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

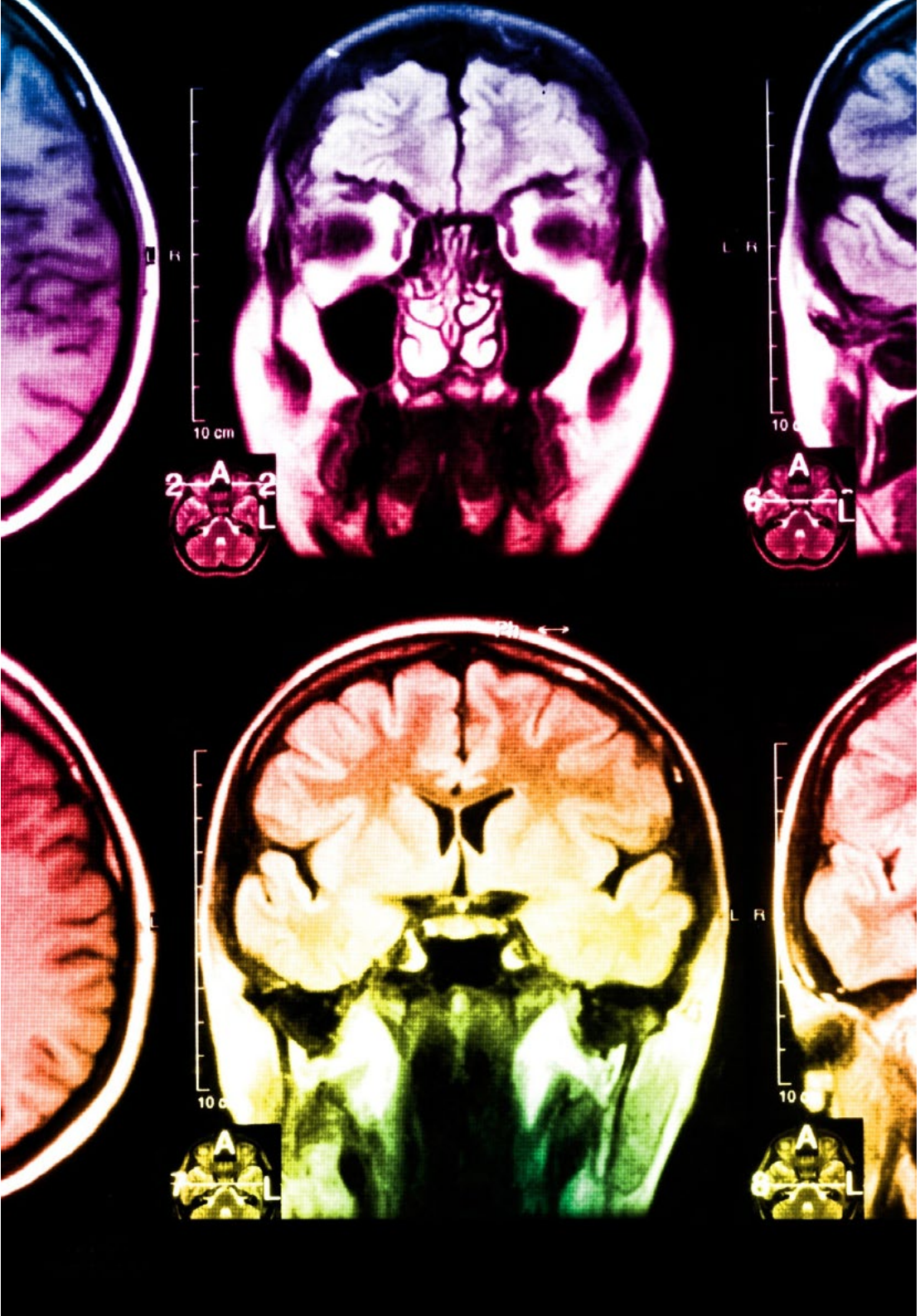
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then adapted in audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high-quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

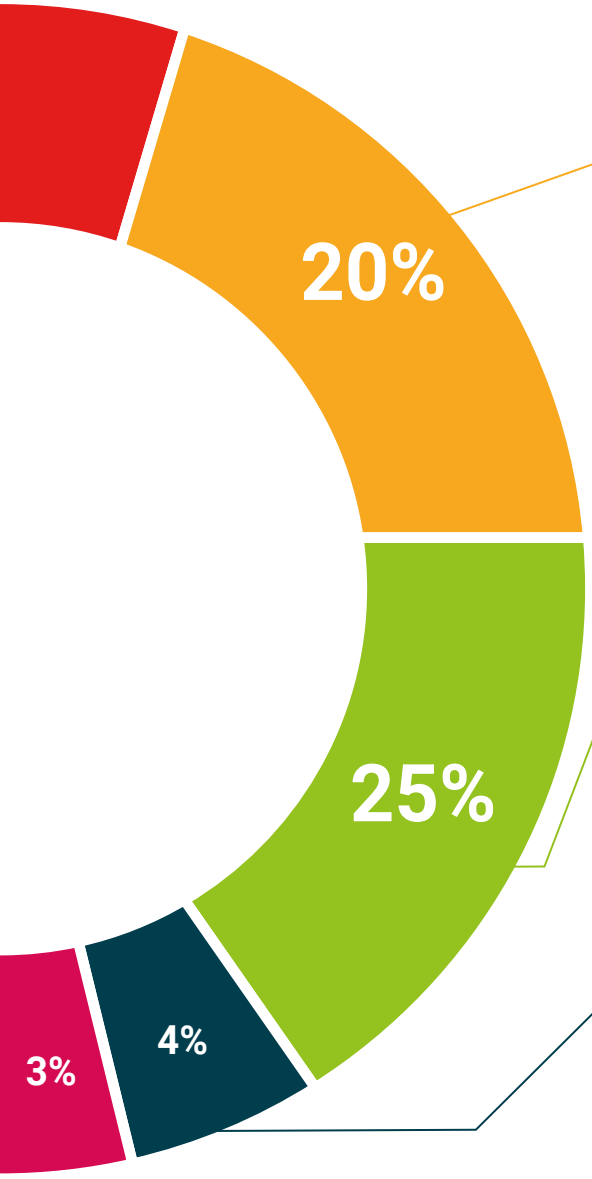
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Practising Skills and Abilities

They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.



Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

06

Certificate

The Postgraduate Diploma in the Android Development guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This **Postgraduate Diploma in Android Development** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Diploma in Android Development**

Official Nº of Hours: **450 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Android Development

This is a qualification awarded by this University, equivalent to 450 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro

Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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