Professional Master's Degree
Android Application Development

tech global university

Professional Master's Degree

Android Application Development

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/information-technology/professional-master-degree/master-android-application-development

Index

01

Introduction

Today, there are more than 3 billion Android devices in the world and, consequently, the Mobile Application Development sector has experienced a dizzying growth. Labor market reports confirm the growing demand for expert profiles in the design of mobile applications, valuing the complete experience in the lifecycle of development, deployment and monetization of applications. It is not easy to find professionals who know the Android programming language, architectures and user interfaces. That is why this program has been designed to provide the interested party with all the knowledge that will boost their career with a specialized profile. Completely online and achieving your qualification in 12 months.

Specialize in the key aspects of customer experience to develop Android apps so that they have greater market entry"

With this Professional Master's Degree in Android Application Development, students will be able to specialize in one of the standard technologies with the greatest professional projection of these times. This way, computer scientists will get up to date in the knowledge necessary to be autonomous when developing an application for devices that use this operating system, from design to production. Furthermore, they will acquire specialized knowledge about the life cycle of Android applications in order to work more efficiently.

For this, TECH has provided a team of highly specialized professionals with the necessary experience to share real cases that lead to a deeper and more efficient learning. Professionals in programming, application development and new technologies that will accompany the professional in the study process. From a secure platform, with interactive content, distributed in videos, graphics, examples based on problems, audiovisual material and with a large community to discuss the issues raised.

Accordingly, the student can be related to areas such as IT or Web or Software, business development, marketing and sales, consulting, multiplatform mobile technology, business, automotive, home automation, Internet of Things (IoT), banking and drones. Allowing them to apply their knowledge for the benefit of any of these sectors.

TECH has the best study methodology based on *relearning*, and available completely online, which eliminates the need to attend a classroom or the typical restrictions of a predetermined schedule. Therefore, in 12 months, students will acquire the necessary basis to undertake consulting tasks in all aspects related to mobile technology on Android or to develop their own business based on the development of applications.

This **Professional Master's Degree in Android Application Development** contains the most complete and up-to-date educational program on the market. The most important features include:

- Case studies presented by experts in Parallel and Distributed Computing
- 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

> *With this Professional Master's Degree in Android Application Development, you will be able to specialize in one of the standard technologies with the greatest professional projection of these times"*

> *You will get the knowledge required to work independently when developing an application for Android devices from design to production"*

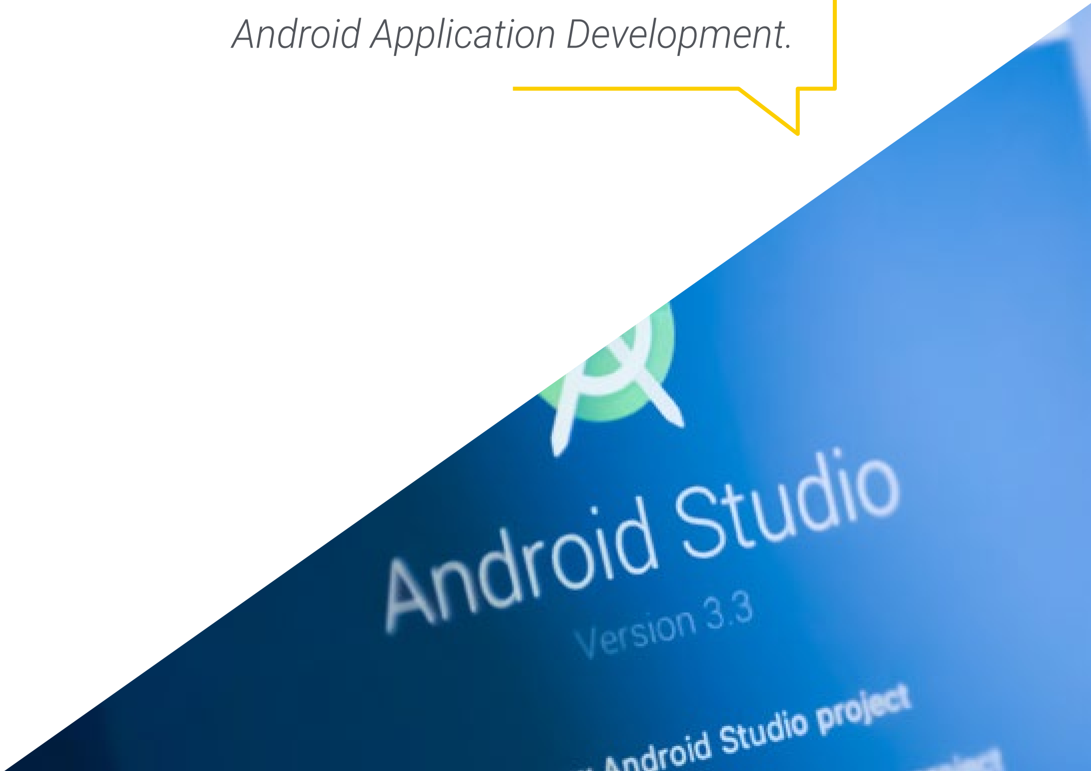
Take advantage of all the benefits of the cutting-edge technological environment that TECH offers you. A 100% online program where you will interact with leading experts.

Provide efficient solutions to your employers or your own company. Handle the fundamentals related to Android Application Development.

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.

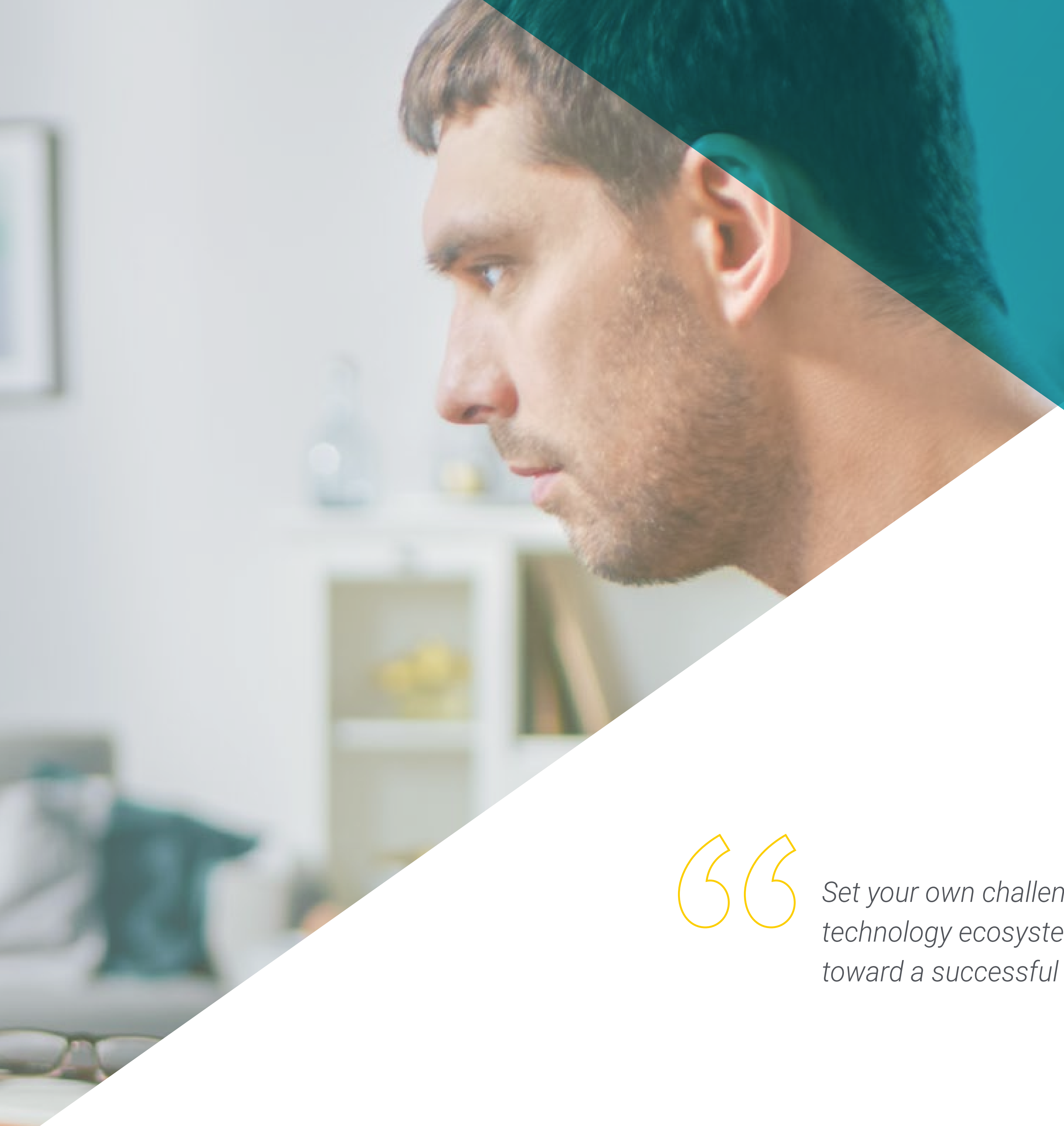
This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced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



02

Objectives

The growth process brought about by the unstoppable development of new technologies and devices is remarkable. Advances that necessitate the continuing education of IT and engineering professionals. The market does not stop; to keep up with the needs, it is essential that professionals are at the forefront of the concepts and styles that are handled. This Professional Master's Degree in Android Application Development, teaches all the tools and fundamentals necessary to develop in this career and provide effective solutions in the professional environment.



> *Set your own challenges within the Android technology ecosystem. Start taking the steps toward a successful career as an app developer"*

General Objectives

- Determine the structural elements of an Android system
- Analyze the differences between the different development frameworks, strengths and weaknesses
- 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
- Master the elements of responsive design and overcoming the challenges associated with it
- Compile the different stages of a continuous integration cycle focused on Android development

> *Become an expert in Android Application Development. Enroll now in this program and graduate 100% online in 12 months"*

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. Frameworks Used in Android Application Development

- Analyze the Android Core Framework
- Develop other Frameworks used for Android application development
- Implement libraries with Graddl
- Set up the frameworks to connect to an API
- Generate specialized knowledge on Architectures as MVP
- Clarify the pros and cons of MVP and MVVM

Module 3. Interfaces and Layouts in Android Application Development

- Introduce the view lifecycle model in Android
- Examining the most important attributes of a visual design (Layouts)
- Analyze available Layouts designs
- Create a reusable Layouts design
- Determine how to use alternative resources
- Identify the differences in the use of these components compared to other programming systems
- Establish the potential and use of the AndroidManifest.xml file

Module 4. 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 5. 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

Module 6. Data Management in Android Devices

- Analyze the different techniques for data management on Android
- Propose methods for optimal use of data on the device
- Identify the tools required for data optimization
- Examine the features of JSON and XML for Android data management
- Evaluate general distributed systems issues applicable to the world of mobile device applications
- Determine the use of the room library as an abstraction for the use of SQLite on Android and its advantages and disadvantages
- Establish the necessary security permissions in data management in any of the techniques used in Android

Module 7. Android Device Tools

- Compile the most advanced tools in day-to-day management
- Evaluate Android device control tools
- Demonstrate the advantages of using Android in drones
- Specify the functionalities of CRM tools
- Demonstrate the benefits of Android devices on banking platforms
- Analyze the possibilities of IoT and Android platforms
- Examine process efficiency tools in Android

Module 8. Responsive Design in Android

- Analyze the main elements of a design
- Define a visual design methodology and a screen design methodology
- Solve the various problems encountered in multi-device development
- Have tools to generate better and more resources for multi-device development
- Examine alternative frameworks to native responsive development
- Generate a unique methodology to develop applications using best practices for multi-device visualization from the beginning of the project

Module 9. Android Application Marketing

- Analyze new user-centric methodologies
- Determine how Artificial Intelligence has taken CX to the next level
- Establish the importance of accessibility and mobility
- Develop state-of-the-art session and behavioral analytics techniques
- Specify micro-personalization objectives during the user journey
- Compile new methodologies for a changing and lively environment
- Propose prototyping techniques

Module 10. Android Application Lifecycle. Cloud, Playstore and Versioning

- Realize the benefits of adopting an automated release deployment model
- Establish the differences between continuous integration, continuous delivery and continuous deployment
- Define the main features of DevOps
- Evaluate some of the fundamental tools for implementing CI/CD pipelines
- Identify the essential factors for developing applications ready to support CI/CD processes
- Examine Container Technologies as a fundamental pillar of CI/CD
- Identify practices, use cases, technologies and tools of the CI/CD ecosystem

03

Skills

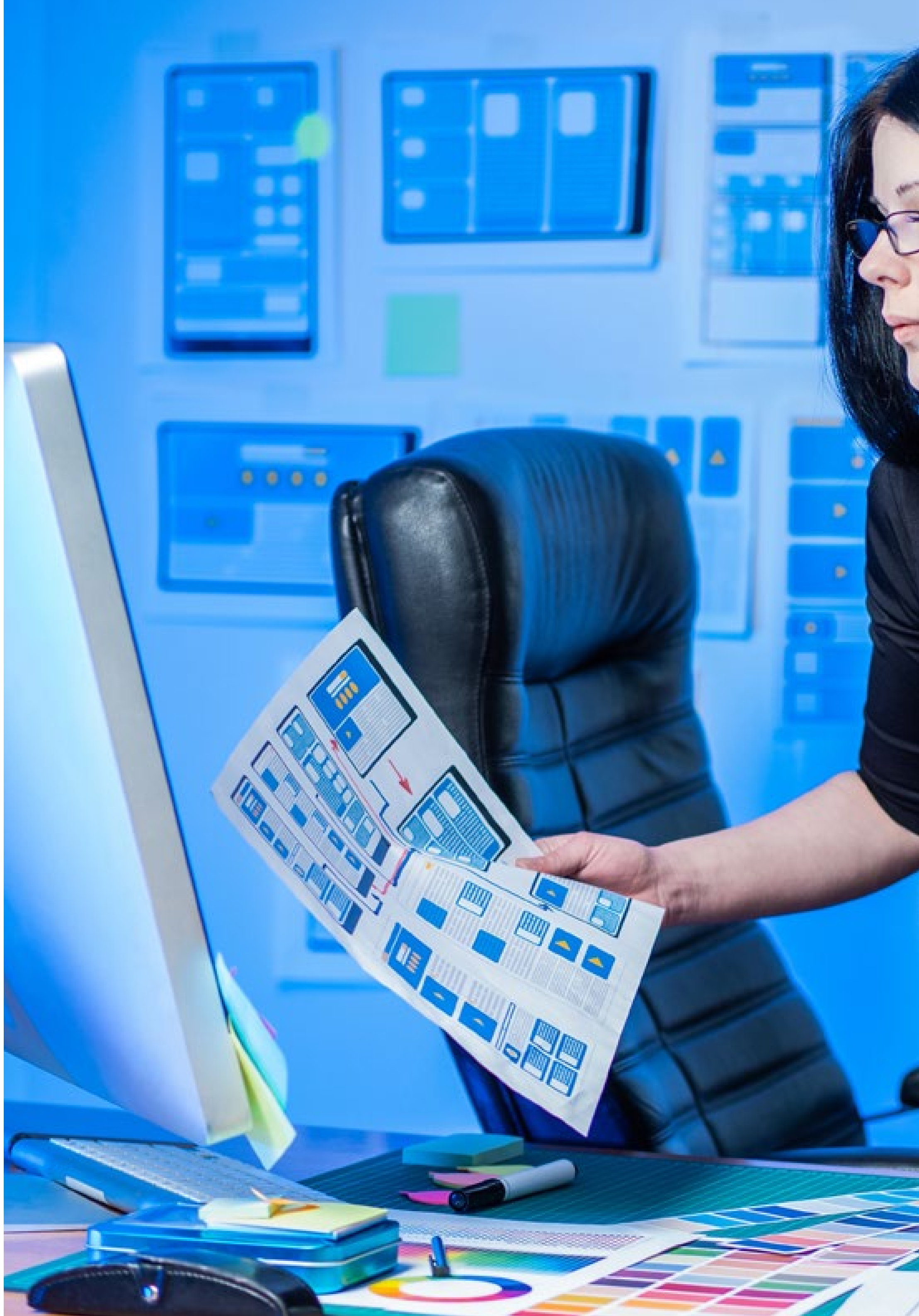
It is not easy to find profiles that know the Android programming language, architectures and user interfaces, depending on the type of device on which the application runs. With the Professional Master's Degree in Android Application Development, students will be able to specialize in one of the standard technologies with the greatest professional projection of these times. You will get the necessary knowledge to be autonomous when developing an application for Android devices from design to production. They will acquire specialized knowledge about the life cycle of Android applications in order to work more efficiently as a developer of applications for mobile devices.

> *With this Professional Master's Degree you will boost your career in business or self-employment. Developing applications that succeed in the market"*

General Skills

- Develop mobile applications for Android OS devices
- Master the structural elements of an Android system
- Analyze the various frameworks to be used by multiple Architectures
- Define the properties of an interface from a usability point of view
- Develop specialized knowledge about the Kotlin programming language and the context of its emergence
- Manage the content provider for data exchange and data security
- Address enterprise tools on Android: their efficiency, usefulness
- Analyze the elements of a responsive design
- Explore new user-centered methodologies
- Adjust the automated pipeline system to the Android ecosystem

> *Compile all these skills in your professional profile will add value to your proposals and make you more attractive to the labor market"*



Specific Skills

- Utilize alternative resources by analyzing available Layouts designs
- Develop the various forms of code flow management in Kotlin and their capabilities
- Improve application productivity through the differential capabilities of the Kotlin language
- Develop extensions and companion objects in Kotlin
- Use databases or network services to create files in different formats
- Handle the room library as an abstraction for using SQLite in Android
- Evaluate Android device control tools, analyzing IoT and Android platform possibilities
- Adopt responsive design to provide more satisfying user experiences
- Combine Prototyping and Wireframing techniques with new disruptive technologies such as Artificial Intelligence and the Internet of Things

04

Course Management

This Professional Master's Degree in Android Application Development is led by teachers with extensive knowledge and experience in new technologies, solution architecture and digital infrastructure, experts in Android programming and application developers. Their extensive resumes offer guaranteed content quality for the content selected for this program. Betting on the optimization of the learning process of professionals who are looking for the contribution they need for their professional success.

> *Professional experts in the development of applications and the technological area will accompany you throughout the study process, providing you with the best content"*

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

Mr. Noguera Rodríguez, Pablo

- Native App Developer (iOS & Android)- Starman Aviation (Aviaze App)
- Native App Developer (iOS) - Stef (Mtrack App)
- Native App Developer (iOS & Android) - Bitnovo (Bitnovo App)
- Expert Java Developer: JSE, JEE and Android - Ilabora Formación
- Android Applications Programming - EOI - Madrid

Mr. Guerrero Díaz-Pintado, Arturo

- Professional services consultant working with leading-edge organizations in Europe, the Middle East and Latin America since IBM
- Outstanding collaborations in renowned universities and higher education centers in subjects related to technology such as Artificial Intelligence, Internet of Things, Cloud, Customer Experience and Digital Transformation
- Technical Presales Engineer across Watson Customer Engagement portfolio (Marketing and Customer Experience solutions) within Spain, Portugal, Greece and Israel at IBM.

- R&D Network Engineer at Telefónica
- Graduate in Telecommunications Engineering from the University of Alcalá and the Danish Technical University

Mr. Pérez Rico, Javier

- Current Android Technical Lead at Nologis
- Android Technical Lead at Seekle
- Androif programmer at Gowex-Ideup
- Junior Android Programmer at Tecnocom
- Speaker at the II iTest Symposium, E@tic
- Degree in Technical Computer Engineering of Systems at the Complutense University of Madrid
- Master's Degree in Research at the Complutense University of Madrid

Mr. Jiménez Pérez, Carlos

- Senior Android Developer at OnTheSpot - Telefónica Tech
- Automatic and Electronic Engineering
- Master's Degree in Electronic Systems and Applications Engineering
- Associate Professor at Carlos III University of Madrid

Mr. Marcano Van Grieken, Alejandro Antonio

- Product Manager - Vikua, Remote (Jira, SCRUM, Figma, Slack, Notion)
- Backend Developer - InnovativeGX
- Systems Engineering Degree, Metropolitan University of Caracas, Venezuela
- Master in Cybersecurity, University of León Online

Mr. Arevalillo González, Emilio

- DBA Oracle BBVA
- Assistant Project Manager Archibus Solution Center Spain
- Backend developer atTelefónica I+D
- Degree in Computer Engineering from the Polytechnic University of Madrid
- Master's Degree in Software and Systems from Polytechnic University of Madrid

Mr. Arranz, Héctor

- Software Project Manager at Ezenit
- Degree in Software Engineering at the Complutense University of Madrid
- Master MBA Power Leaders by The Power MBA Teaching Experience
- Digital skills trainer at Three Life
- Digital skills trainer at Fundacion Esplai
- Assistant professor of the multi-platform application development degree at MEDAC
- Support for entrepreneurship work at Complutense University of Madrid
- Digital skills trainer at Three Life and Fundacion Esplai
- Entrepreneurship consultant at Cink Venturing
- Adjunct professor of the multiplatform application development degree at MEDAC

Hr. Gozalo Fernández, Juan Luis

- Blockchain-basierter Produktmanager für Open Canarias
- Blockchain DevOps Direktor bei Alastria
- Direktor für Service Level Technologie bei Santander Spanien
- Direktor Mobile Anwendungsentwicklung Tinkerlink bei Cronos Telecom
- Technischer Direktor für IT-Service-Management bei der Barclays Bank Spanien
- Hochschulabschluss in Computertechnik an der UNED
- Spezialisierung auf Deep Learning bei DeepLearning.ai

05

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 10 modules that perfectly teach everything you need to perform as an application developer. From module 1, the technique and deep knowledge of the subject is evident and can be mastered to perfection in 12 months. Obtain a 100% online qualification thanks to the relearning methodology that allows a quick learning and memorization of the concepts and practices.

> *Dynamic content with practical exercises, videos and interactive formats will determine an agile and digestible training"*

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. Frameworks Used in Android Application Development

- 2.1. Frameworks in Android Application Development
  - 2.1.1. Frameworks in Android Application Development
  - 2.1.2. Frameworks Types
  - 2.1.3. Selecting Project Frameworks
- 2.2. Android Framework Implementation
  - 2.2.1. Android Core Frameworks for Java/Kotlin
  - 2.2.2. Jetpack Compose
  - 2.2.3. Frameworks in Other Languages
- 2.3. Library Management Systems in Development
  - 2.3.1. Gradle
  - 2.3.2. Automation with Gradle
  - 2.3.3. Maven Development Tool

2.4. Clean Code
    2.4.1. Ordered Code
    2.4.2. Code Preparation in Android Applications
    2.4.3. Bikeshedding and Prioritization
2.5. Android Development Patterns
    2.5.1. Pattern Categories
    2.5.2. Differences between Patterns
    2.5.3. Factory, Observer and Singleton
2.6. MVP Model, View and Presenter
    2.6.1. MVC: Model, View and Controller
    2.6.2. Model, View and Presenter
    2.6.3. Practical Example: Pokemon Battle
2.7. MVVM: Model, View and View Model
    2.7.1. MVC vs. MVVM
    2.7.2. Model, View and View Model
    2.7.3. Practical Example: Pokemon Battle II
2.8. Most Used Frameworks and Libraries in Android
    2.8.1. API Interaction Libraries
    2.8.2. Data Conversion Libraries
    2.8.3. Firebase and Firebase Analytics
2.9. Android's Visual Framework
    2.9.1. Life Cycle of an Android Application
    2.9.2. XML View Design
    2.9.3. Design of Elements and Animations in XML
2.10. Android Frameworks in Other Languages
    2.10.1. React Native
    2.10.2. Flutter
    2.10.3. Ionic

Module 3. Interfaces and Layouts in Android Application Development

3.1. Android Interface Lifecycle
    3.1.1. Android Lifecycle
    3.1.2. Process-Activity Relationship
    3.1.3. Application State Persistence
    3.1.4. Clean Architecture Applied to Android
3.2. Views in Android Application Development (Views)
    3.2.1. Clean Architecture Presentation Layer
    3.2.2. Recycler View
    3.2.3. Adapter View
3.3. Designs in Android Application Development (Layouts)
    3.3.1. Layouts in Android
    3.3.2. Constraint Layout
    3.3.3. Creating Layouts Using Android Studio Layout Editor
3.4. Animations in Android Application Development (Animations)
    3.4.1. Icons and Images
    3.4.2. Transitions
    3.4.3. Difference between Property Animation and View Animation
3.5. Activities and Intentions in Android Application Development (Activity and Intentions)
    3.5.1. Explicit and Implicit Intentions
    3.5.2. Action Bar
    3.5.3. Communication between Activities
3.6. Alternative and System Resources (Material Design, Cardboard, etc.)
    3.6.1. Material Design for Android
    3.6.2. Multimedia in Android
    3.6.3. Virtual Reality with Google Cardboard for Android NDK
3.7. Styles and Themes in Android Application Development
    3.7.1. Styles in an Android Project
    3.7.2. Themes for the Android Project
    3.7.3. Reuse of Styles and Themes
3.8. Graphics, Touch Screen and Sensors
    3.8.1. Working with Advanced Graphics
    3.8.2. Management of Touch Screen and Keypad Devices
    3.8.3. Use of Android Device Sensors

3.9. Augmented Reality Designs
- 3.9.1. Complex Interfaces Using the Camera
- 3.9.2. Position Sensors and GPS in Augmented Reality
- 3.9.3. Presentation on Non-Standard Screens
- 3.9.4. Common Errors and Problems

3.10. Advanced Interface Configuration with AndroidManifest.xml
- 3.10.1. The Power of the Android Manifest File
- 3.10.2. Programmatic vs. Declarative Design
- 3.10.3. Key Components of the File

Module 4. Programming Language in Android Applications: Kotlin

4.1. Kotlin Programming Language
- 4.1.1. Kotlin Programming Language
- 4.1.2. Kotlin Programming Language. Features
- 4.1.3. Running a Program in Kotlin

4.2. Programming in Kotlin
- 4.2.1. Structure of a Program in Kotlin
- 4.2.2. Reserved Words and Syntax
- 4.2.3. Write through Console and Read User Inputs – Hello World

4.3. Types and Variables in Kotlin
- 4.3.1. Types and Variables in Kotlin
- 4.3.2. Variable Declaration: Var vs. Val
- 4.3.3. Operators
- 4.3.4. Type Conversion
- 4.3.5. Arrays

4.4. Flow Control in Kotlin
- 4.4.1. Flow Control
- 4.4.2. Conditional Expressions
- 4.4.3. Loops

4.5. Functions in Kotlin
- 4.5.1. Functions in Kotlin
- 4.5.2. Structure of a Function
- 4.5.3. Scope Functions

4.6. Types and Objects in Kotlin
- 4.6.1. Types and Objects in Kotlin
- 4.6.2. Classes
- 4.6.3. Objects
- 4.6.4. Constructors and Property Initialization
- 4.6.5. Nested Classes and Inner Classes
- 4.6.6. Data Classes

4.7. Kotlin Inheritance
- 4.7.1. Inheritance
- 4.7.2. Superclasses and Subclasses
- 4.7.3. Overwriting Properties and Functions
- 4.7.4. Inheritance vs. Other Types of Relationship between Classes
- 4.7.5. Sealed Classes
- 4.7.6. Listed

4.8. Abstract Classes and Interfaces in Kotlin
- 4.8.1. Abstract Classes and Interfaces
- 4.8.2. Abstract Classes
- 4.8.3. Interfaces
- 4.8.4. Validation and Conversion of Operator Types - Is, When, As

4.9. Kotlin Collections
- 4.9.1. Kotlin Collections
- 4.9.2. List
- 4.9.3. Set
- 4.9.4. Map

4.10. Exception and Null Value Handling in Kotlin
- 4.10.1. Exception and Null Value Handling
- 4.10.2. Null Value, Nullable and Non-Nullable Types
- 4.10.3. Exceptions

Module 5. Programming Language in Android Applications Advanced Kotlin Genericity, Functional Programming and Parallelism

- 5.1. Genericity in Kotlin
  - 5.1.1. Genericity in Kotlin
  - 5.1.2. Genericity in Collections, Functions, Classes and Interfaces
  - 5.1.3. Covariance and Contravariance: Out or In
- 5.2. Lambda Functions in Kotlin
  - 5.2.1. Lambda Functions
  - 5.2.2. Structure of a Lambda Function
  - 5.2.3. Use of Lambda Functions
- 5.3. Higher Order Functions in Kotlin
  - 5.3.1. Higher Order Functions
  - 5.3.2. Standard Kotlin Higher-Order Functions
  - 5.3.3. Linking Function Calls
- 5.4. Kotlin Extensions
  - 5.4.1. Kotlin Extensions
  - 5.4.2. Extension Functions
  - 5.4.3. Extension Properties
  - 5.4.4. Accompanying Objects
- 5.5. Delegation Pattern in Kotlin
  - 5.5.1. Delegation Pattern
  - 5.5.2. Delegation in Kotlin
  - 5.5.3. Delegated Properties
- 5.6. Annotations and Reflection in Kotlin
  - 5.6.1. Annotations and Reflection
  - 5.6.2. Annotations in Kotlin
  - 5.6.3. Reflection in Kotlin
- 5.7. Testing in Kotlin
  - 5.7.1. Testing in Kotlin
  - 5.7.2. Kotlin Testing Frameworks and Libraries
  - 5.7.3. Kotest
- 5.8. Asynchronous Programming in Kotlin
  - 5.8.1. Asynchronous Programming
  - 5.8.2. Asynchronous Programming Techniques in Kotlin
  - 5.8.3. Comparative Programming Techniques
- 5.9. Coroutine in Kotlin
  - 5.9.1. Coroutines
  - 5.9.2. Channels
  - 5.9.3. Context and Dispatchers
  - 5.9.4. Shared State and Concurrency
  - 5.9.5. Exception Handling in Coroutines
- 5.10. Kotlin Ecosystem
  - 5.10.1. Kotlin Ecosystem
  - 5.10.2. Libraries for Kotlin
  - 5.10.3. Tools for Kotlin

Module 6. Data Management in Android Devices

- 6.1. Data Management Types
  - 6.1.1. Data Management in Mobile Devices
  - 6.1.2. Alternatives for Data Management in Android devices
  - 6.1.3. Data Generation for Work with Artificial Intelligence and Usage Analytics
  - 6.1.4. Performance Measurement Tools for Optimal Data Management
- 6.2. User Preferences Management
  - 6.2.1. Types of Data Involved in Preference Files
  - 6.2.2. User Preferences Management
  - 6.2.3. Exporting Preferences: Permissions Management
- 6.3. File Storage System
  - 6.3.1. File System Classification on Mobile Devices
  - 6.3.2. Internal File System
  - 6.3.3. External File System

6.4. JSON Files as Storage in Android

6.4.1. Unstructured Information in JSON Files

6.4.2. JSON Data Management Libraries

6.4.3. Use of JSON in Android: Recommendations and Optimizations

6.5. XML Files as Storage in Android

6.5.1. XML Format in Android

6.5.2. XML through SAX Libraries

6.5.3. XML through DOM Libraries

6.6. SQLite Database

6.6.1. Relational Database for Data Management

6.6.2. Database Use

6.6.3. SQLite Methods for Data Management

6.7. Advanced Use of SQLite Databases

6.7.1. Failure Recovery Using SQLite Transactions

6.7.2. Use of Caching to Accelerate Data Access

6.7.3. Mobile Databases

6.8. Room Library

6.8.1. Architecture of the Room Library

6.8.2. Room Library: Functionality

6.8.3. Room Library: Advantages and Disadvantages

6.9. Content Provider to Share Information

6.9.1. Content Provider to Share Information

6.9.2. Content Provider in Android Technician Use

6.9.3. Content Provider Security

6.10. Internet Cloud Data Collection

6.10.1. Android and Cloud Storage Systems

6.10.2. SOAP and REST Services for Android

6.10.3. Problems of Distributed Systems

6.10.4. Internet as a Backup of Application Data

Module 7. Android Device Tools

7.1. Management: "TO DO" Tools

7.1.1. Market Tools

7.1.2. Market Tools Comparison of Functionalities

7.1.3. Management Tools: Differences

7.2. MDM: Enterprise Mobile Device Management

7.2.1. Control of Enterprise Devices

7.2.2. Analysis of the Main Market Tools

7.2.3. Choosing the Tool

7.3. CRM: Market Tools

7.3.1. Analysis of Market Tools with Android Application

7.3.2. Market Tools: Efficiency

7.3.3. Market Tools: Uses

7.4. Android Drones

7.4.1. Drone Control Apps for Android Devices

7.4.2. Autonomous Controls

7.4.3. Drone Uses in Android

7.5. Android, Added Value in Banking Platforms

7.5.1. Android in Banking Platforms

7.5.2. Risks and Fraud of Cybercriminals

7.5.3. Uses of Mobile Devices

7.6. Brokering in Mobile Devices

7.6.1. Market Tools and Their Use

7.6.2. Comparison of Tools

7.6.3. Choice of Tool for Each Use

7.7. Entertainment and Training Tools

7.7.1. Uses

7.7.2. Market Tools

7.7.3. Feature Comparisons between Android Development Tools

7.8. Android IoT
- 7.8.1. Framework and Market Platforms
- 7.8.2. Android IoT Risks and Considerations
- 7.8.3. IoT Uses in Android

7.9. Process Efficiency
- 7.9.1. Analysis of Market Tools for Creating Apps
- 7.9.2. Comparison of Android App Creation Tools
- 7.9.3. Use Case

7.10. Most Downloaded Applications at Present
- 7.10.1. Most Downloaded Tools at Present
- 7.10.2. Grouping by Families
- 7.10.3. Primary, Secondary and Comparative Uses with IOS

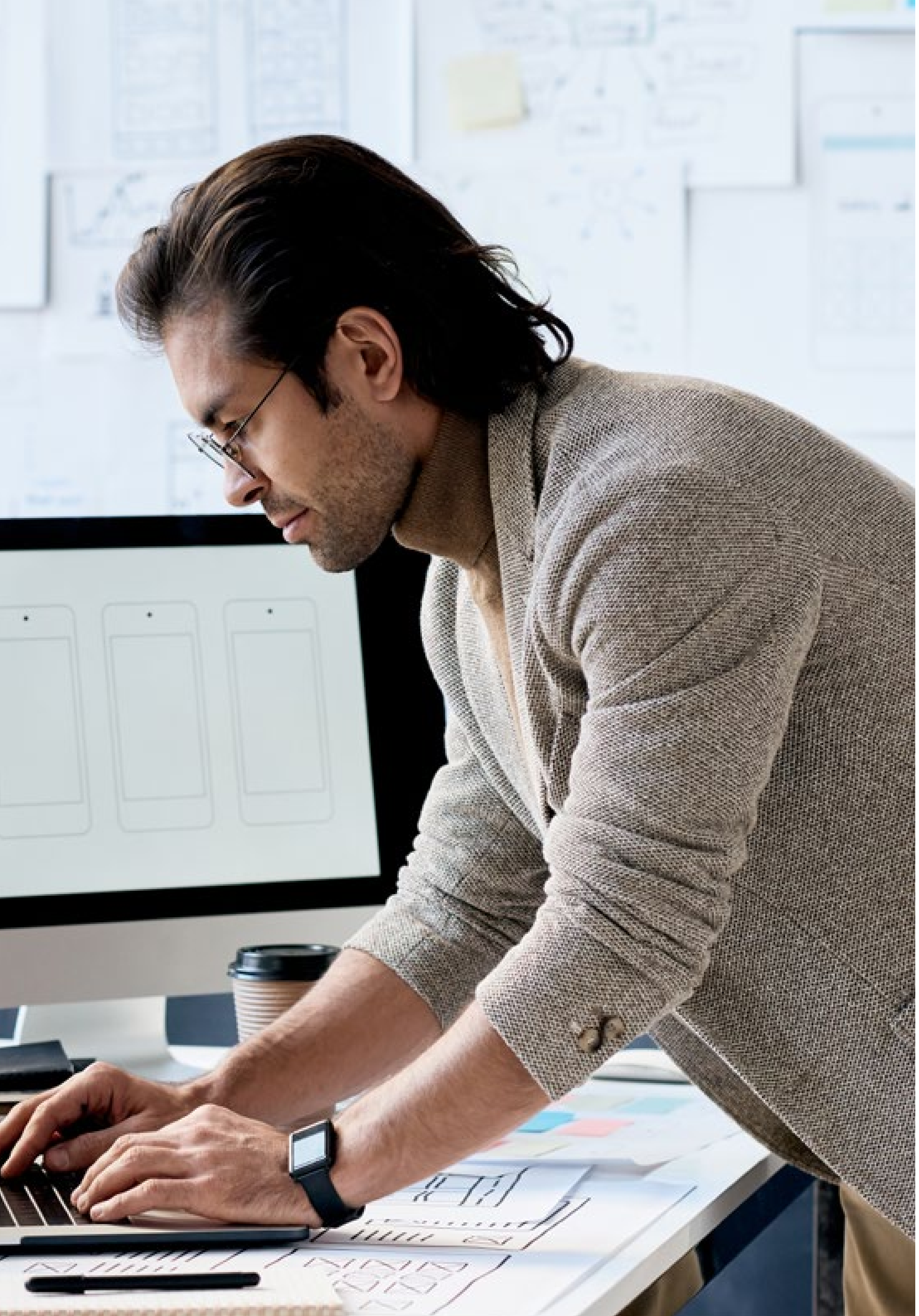
Module 8. Responsive Design in Android

8.1. Responsive Design
- 8.1.1. Responsive Design
- 8.1.2. Usability, Accessibility and UX
- 8.1.3. Responsive Design Advantages and Disadvantages.

8.2. Cell Phone vs. Tablet vs. Web vs. Smartwatches
- 8.2.1. Different Formats, Different Sizes, Different Needs
- 8.2.2. Design Problems
- 8.2.3. Adaptive vs. Responsive

8.3. Style Guide
- 8.3.1. Style Guides Uses
- 8.3.2. Design Material
- 8.3.3. Own Style Guide

8.4. Flexible Layouts
- 8.4.1. Flexible Layouts
- 8.4.2. Basic Layouts
- 8.4.3. Layouts in Grid
- 8.4.4. Layouts with Relative Layout
- 8.4.5. Layouts with Constraint Layout



8.5. Flexible Resources
- 8.5.1. Flexible Resources
- 8.5.2. Images
- 8.5.3. 9-Patch
- 8.5.4. Global Resources

8.6. Flexible Navigation
- 8.6.1. Flexible Navigation
- 8.6.2. Navigation with Activities
- 8.6.3. Navigation with Fragments

8.7. External Tools
- 8.7.1. Automatic Generators
- 8.7.2. Prototyping Tools
- 8.7.3. Design Tools

8.8. Debug and Tests
- 8.8.1. Debug Layouts
- 8.8.2. Automatic Tests
- 8.8.3. Component-Based Development
- 8.8.4. Best Practices of Testing and Trials

8.9. Alternatives to Native Android I. Web Pages
- 8.9.1. Design in a WebView
- 8.9.2. Chrome Custom Tabs
- 8.9.3. Debug and Tests in Web Pages

8.10. Alternatives to Native Android II. Hybrid Applications
- 8.10.1. React/React Native
- 8.10.2. Flutter
- 8.10.3. Ionic
- 8.10.4. Apache Cordova

Module 9. Marketing in Android Applications

9.1. From Customer Service to Customer Experience
- 9.1.1. Customer Service: Current Customer Development
- 9.1.2. User with Access to Information: Requirements and Needs
- 9.1.3. Feedback as a Source of Knowledge

9.2. Customer Journey.
- 9.2.1. User Pathway to Conversion
- 9.2.2. Micro-Segmentation
- 9.2.3. Cross-Channel Experience

9.3. User Experience Measurement
- 9.3.1. Web and Mobile Architecture
- 9.3.2. Session Analytics as a New Standard
- 9.3.3. State-of-the-Art of User Experience

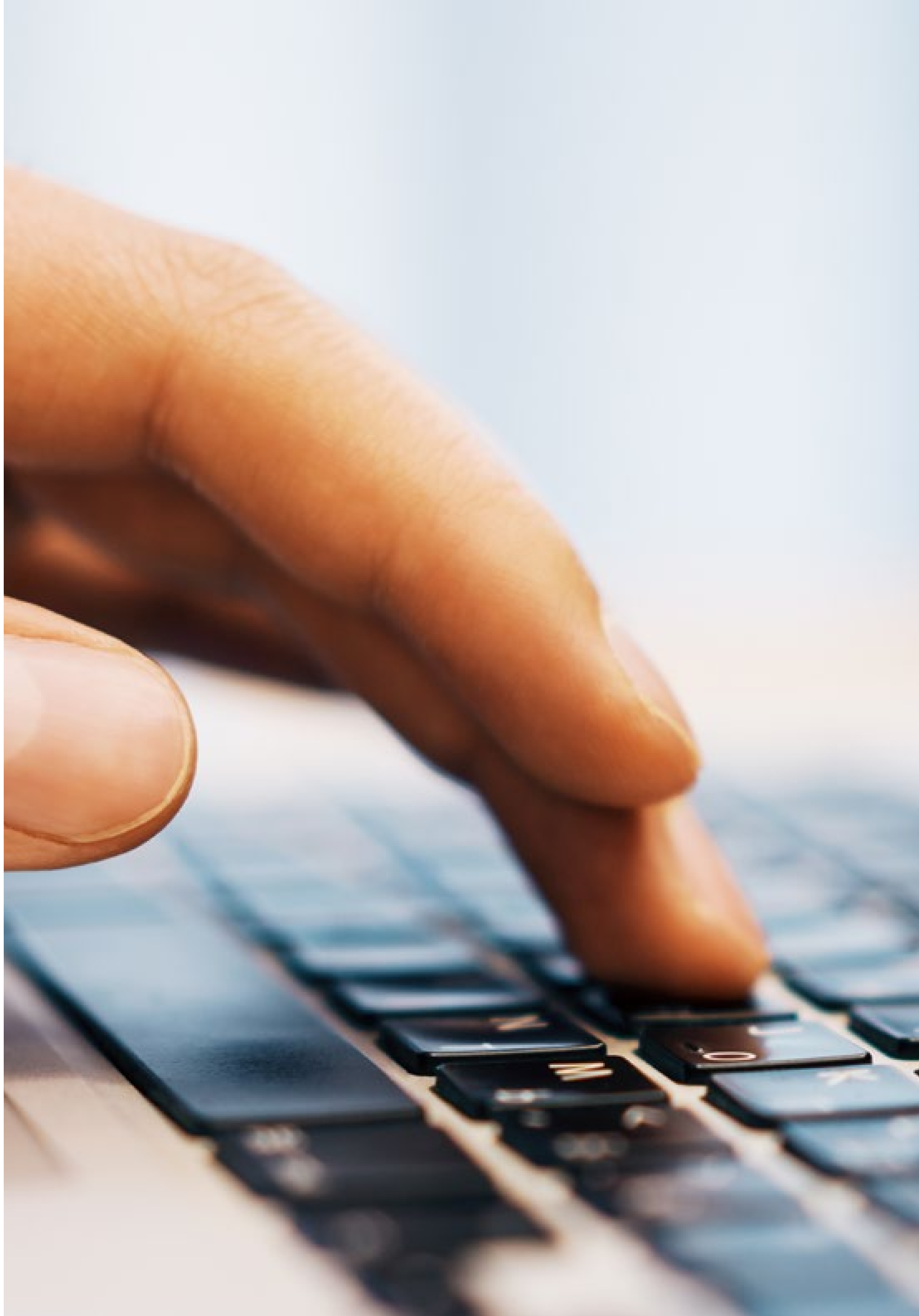
9.4. Android Applications Marketing
- 9.4.1. CX+AI
- 9.4.2. CX+Blockchain
- 9.4.3. CX+IoT

9.5. CX Products (Customer Experience)
- 9.5.1. Industry Standards
- 9.5.2. Telepresence
- 9.5.3. Customer Experience for all Development Agents

9.6. User-Centered Work
- 9.6.1. Equipment
- 9.6.2. Designer Thinking
- 9.6.3. Field Work

9.7. User Science
- 9.7.1. User Science: Golden Rules
- 9.7.2. Iteration
- 9.7.3. Common Errors

9.8. Prototyping and Wireframing
- 9.8.1. Prototyping and Wireframing
- 9.8.2. Hands-On
- 9.8.3. Advanced Level



9.9. Mobiles Interfaces
- 9.9.1. Visual Design Rules
- 9.9.2. App Interface Keys
- 9.9.3. Best Practices in the Development of Mobile Interfaces

9.10. Best Practices in Users Experience: Tips for Developers
- 9.10.1. Level One. Best Practices in CX
- 9.10.2. Level Two. Best Practices in UX
- 9.10.3. Level Three. Best Practices in UI

Module 10. Android Application Life Cycle: Cloud, Playstore and Versioning

10.1. Software Life Cycle
- 10.1.1. Software Life Cycle
- 10.1.2. Agile Methodologies
- 10.1.3. The Continuous Agile Software Cycle

10.2. Manual Product Development
- 10.2.1. Manual Integration
- 10.2.2. Manual Delivery
- 10.2.3. Manual Deployment

10.3. Supervised Integration
- 10.3.1. Continuous Integration
- 10.3.2. Manual Revision
- 10.3.3. Static Automatic Revisions

10.4. Logical Tests
- 10.4.1. Unit Tests
- 10.4.2. Integration Test
- 10.4.3. Behavior Tests

10.5. Continuous Integration
- 10.5.1. Continuous Integration Cycle
- 10.5.2. Dependencies between Integrations
- 10.5.3. Continuous Integration as a Repository Management Methodology

10.6. Continuous Delivery
- 10.6.1. Continuous Delivery Types of Problems to Be Solved
- 10.6.2. Continuous Delivery: Problem Solving
- 10.6.3. Advantages of Continuous Delivery

10.7. Continuous Deployment
- 10.7.1. Continuous Deployment: Types of Problems to Be Solved
- 10.7.2. Continuous Deployment: Problem Solving

10.8. Firebase Test Lab
- 10.8.1. Configuration from GCloud
- 10.8.2. Jenkins Configuration
- 10.8.3. Use of Jenkins: Advantages

10.9. Gradle Configuration
- 10.9.1. Gradle Automation System
- 10.9.2. Gradle Build Flavors Component
- 10.9.3. Gradle Lint Component

10.10. Android Application Life Cycle: Example
- 10.10.1. SemaphoreCI and GitHub Configuration
- 10.10.2. Configuration of Work Blocks
- 10.10.3. Promotions and Deployment

> *Do not wait any longer to take the step towards professionalization, you are part of the future. Start designing the best mobile applications with this Professional Master's Degree"*

06

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

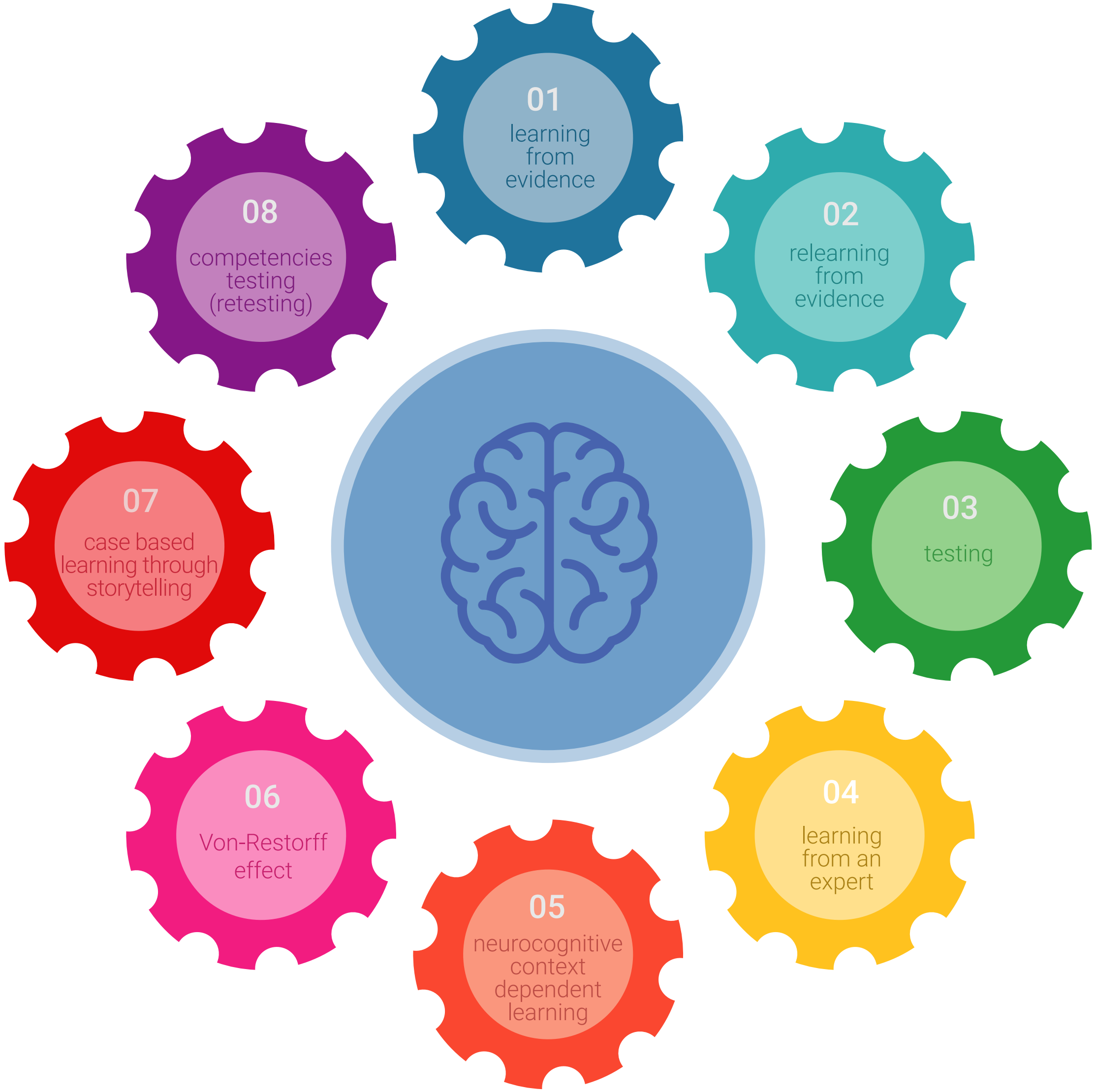
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

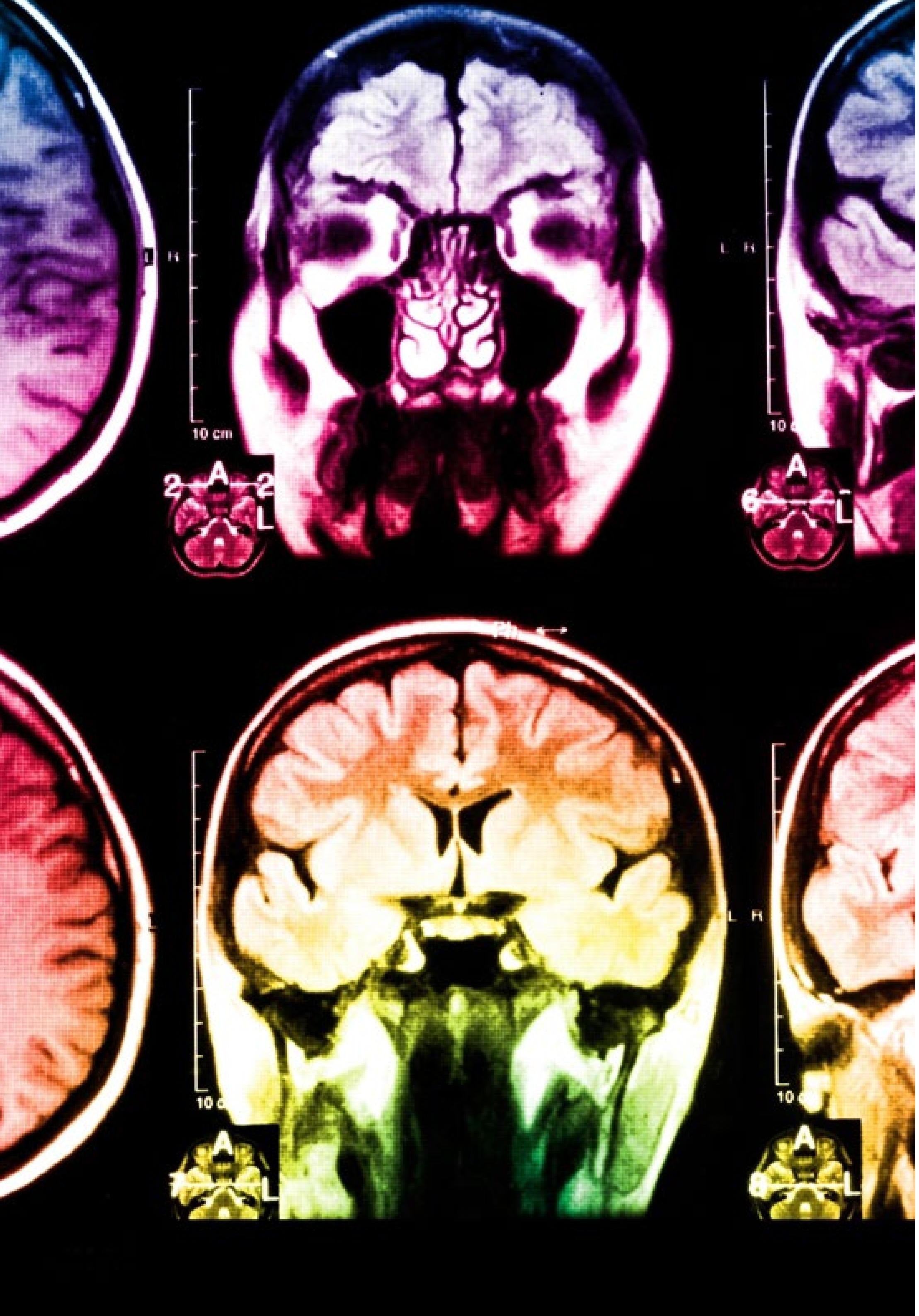
We enhance the Case Study with the best 100% online teaching method: Relearning.

> *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.


01
learning from evidence
02
relearning from evidence
03
testing
04
learning from an expert
05
neurocognitive context dependent learning
06
Von-Restorff effect
07
case based learning through storytelling
08
competencies testing (retesting)



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 applied to the 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.

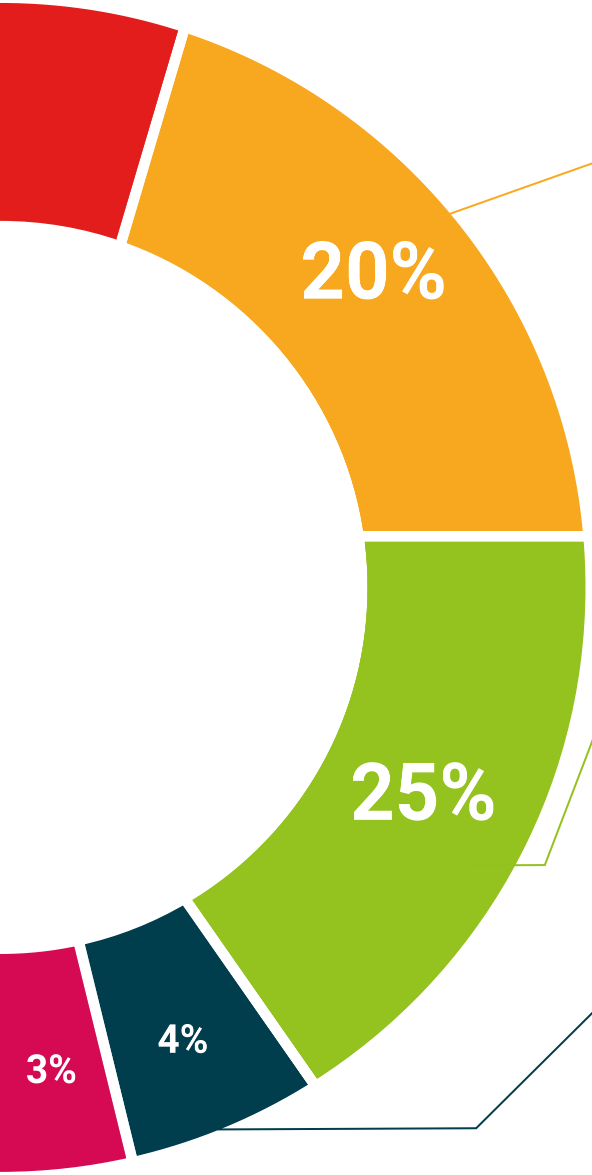
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject 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.

07

Certificate

The Professional Master's Degree in Android Application Development guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree issued by TECH Global University.

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

This program will allow you to obtain your **Professional Master's Degree diploma in Android Application Development** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

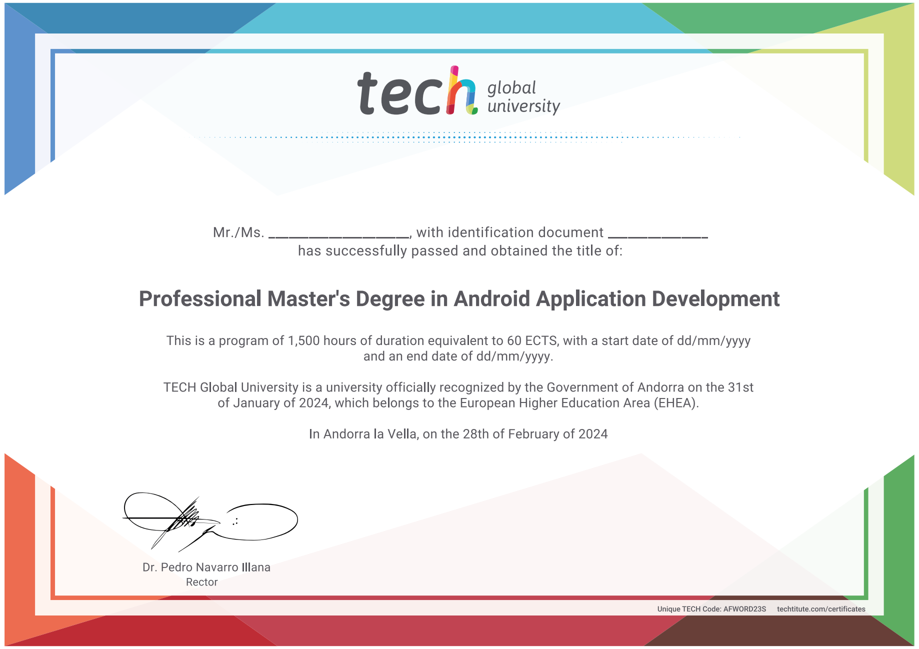
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Professional Master's Degree in Android Application Development**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**



tech global university

Mr./Ms. ________________, with identification document ___________
has successfully passed and obtained the title of:

Professional Master's Degree in Android Application Development

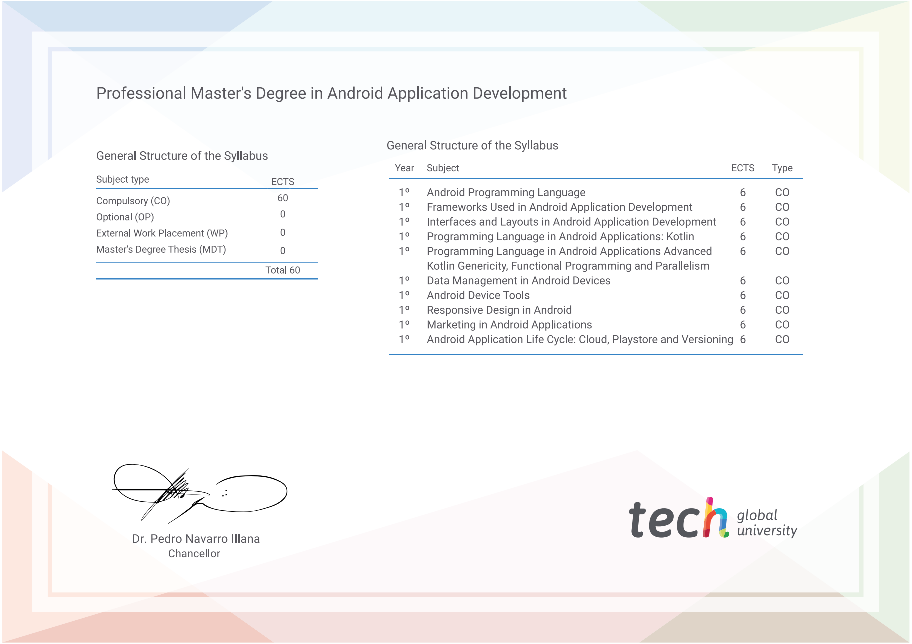
This is a program of 1,500 hours of duration equivalent to 60 ECTS, with a start date of dd/mm/yyyy
and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st
of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

Unique TECH Code: AFWORD23S techtitute.com/certificates



Professional Master's Degree in Android Application Development

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 60

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Android Programming Language	6	CO
1º	Frameworks Used in Android Application Development	6	CO
1º	Interfaces and Layouts in Android Application Development	6	CO
1º	Programming Language in Android Applications: Kotlin	6	CO
1º	Programming Language in Android Applications Advanced Kotlin Genericity, Functional Programming and Parallelism	6	CO
1º	Data Management in Android Devices	6	CO
1º	Android Device Tools	6	CO
1º	Responsive Design in Android	6	CO
1º	Marketing in Android Applications	6	CO
1º	Android Application Life Cycle: Cloud, Playstore and Versioning	6	CO

Dr. Pedro Navarro Illana
Chancellor

tech global university

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

tech global university

Professional Master's Degree
Android Application Development

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree
Android Application Development

//up/down
if (e.keyCode == 38 || e.keyCode == 40) {
e.preventDefault();
e.stopImmediatePropagation();
if (e.keyCode == 38) { // up
// show previous search query
if (hist.currentIndex == hist.history.length) {
hist.temporaryQuery = input.value;
// skip previous search if we're already
if (hist.temporaryQuery == hist.history[hist.currentIndex
hist.currentIndex--;
.gitignore
background.js
Line 54, Column 1

tech global university