

Advanced Master's Degree Mobile Application Development, Android Expert



Advanced Master's Degree Mobile Application Development, Android Expert

- » Modality: online
- » Duration: 2 years
- » Certificate: TECH Global University
- » Accreditation: 120 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/us/information-technology/advanced-master-degree/advanced-master-degree-mobile-application-development-android-expert

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01

Introduction to the Program

Currently, mobile applications are essential for companies, representing an advance towards the adaptation to the digital habits of users. With more than 3 billion Android devices in the world, the development of mobile applications has grown exponentially, consolidating itself as a key sector. This context demands specialists capable of creating innovative solutions that go beyond the capabilities of a website. To respond to this need, we present a 100% online program designed to provide IT professionals with the necessary tools to specialize, excel in App development and meet the demands of a constantly evolving industry.





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Discover, together with experts, the fundamental aspects of Customer Experience to create Android Apps with a high impact on the market”

Labor market analyses highlight a growing need for professionals specialized in mobile application design, valuing comprehensive experience in the development cycle, deployment and monetization of these solutions. This program, created in collaboration with leading industry experts, focuses on providing computer scientists with solid knowledge in programming languages, with a special focus on Android, architectures and user interfaces.

The participant will develop skills to master different programming languages adapted to each type of device, delving into responsive design to create versatile and efficient apps. In addition, you will explore key areas such as web computing, software, business development, marketing, sales, consulting, multiplatform mobile technology, automotive applications, home automation, IoT, banking and drones.

TECH offers a 100% online methodology, which allows professionals to learn without the need for face-to-face classes or fixed schedules. In 15 months, participants will gain the necessary tools to boost their own business in App development or take on consulting roles in Android-based mobile technology.

This **Advanced Master's Degree in Mobile Application Development, Android Expert** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ♦ The development of case studies presented by experts in Mobile Application Development
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Its special emphasis on innovative methodologies in the management of of mobile application development
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



Participate in 10 innovative Masterclasses with a leading international expert in Android App Development”

“

Study when and where you want with this 100% online program, with no time or location limits”

It includes in its teaching staff professionals belonging to the field of Mobile Application Development, who pour into this program the experience of their work, in addition to recognized specialists from leading companies 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 an immersive learning experience designed to prepare for real-life situations.

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

Take advantage of TECH's innovative methodology that revolutionizes academic learning.

Reinforce theoretical concepts with the practical resources offered by this program.



02

Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs, available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it has a huge faculty of more than 6,000 professors of the highest international prestige.



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Study at the largest online university in the world and ensure your professional success. The future begins at TECH”

The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future"

Forbes
Mejor universidad
online del mundo

Plan
de estudios
más completo

The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

Profesorado
TOP
Internacional

La metodología
más eficaz

A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in eleven different languages, making us the largest educational institution in the world.

nº1
Mundial
Mayor universidad
online del mundo

The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.



Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.



The official online university of the NBA

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The top-rated university by its students

The main review websites have positioned TECH as the best rated university in the world by its students. These review portals, recognized for their reliability and prestige due to the rigorous verification and validation of the authenticity of each opinion, have given TECH highly favorable ratings. These ratings place TECH as the absolute international university reference.



Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.

03 Syllabus

The contents of this program have been designed by a team of specialists in Application Development, ensuring a comprehensive approach to the creation of mobile solutions. This plan addresses the main needs of the current market, allowing participants to identify development opportunities on different platforms and devices. In addition, it delves into the most advanced techniques to design intuitive and functional interfaces, optimizing the user experience and promoting applications that drive innovation in various sectors.





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It empowers mobile users to maximize their potential with innovative technological tools”

Module 1. Programming Methodologies in Mobile Application Development

- 1.1. Software Development Processes
 - 1.1.1. Waterfall
 - 1.1.2. Spiral
 - 1.1.3. RUP
 - 1.1.4. V-Model
- 1.2. Agile Software Development Processes
 - 1.2.1. Scrum
 - 1.2.2. XP
 - 1.2.3. Kanban
- 1.3. Unified Modeling Language (UML)
 - 1.3.1. UML
 - 1.3.2. Types of Modeling
 - 1.3.3. Basic Blocks of UML
- 1.4. UML Behavioral Diagrams
 - 1.4.1. Activity Diagram
 - 1.4.2. Use Case Diagram
 - 1.4.3. Interaction Overview Diagram
 - 1.4.4. Timing Diagram
 - 1.4.5. State Machine Diagram
 - 1.4.6. Communication Diagram
 - 1.4.7. Sequence Diagram
- 1.5. UML Structural Diagrams
 - 1.5.1. Class Diagram
 - 1.5.2. Object Diagram
 - 1.5.3. Component Diagram
 - 1.5.4. Composite Structure Diagram
 - 1.5.5. Deployment Diagram
- 1.6. Creative Design Patterns
 - 1.6.1. Singleton
 - 1.6.2. Prototype
 - 1.6.3. Builder
 - 1.6.4. Factory
 - 1.6.5. Abstract Factory
- 1.7. Structural Design Patterns
 - 1.7.1. Decorator
 - 1.7.2. Facade
 - 1.7.3. Adapter
 - 1.7.4. Bridge
 - 1.7.5. Composite
 - 1.7.6. Flyweight
 - 1.7.7. Proxy
- 1.8. Behavior Patterns
 - 1.8.1. Chain of Responsibility
 - 1.8.2. Command
 - 1.8.3. Iterator
 - 1.8.4. Mediator
 - 1.8.5. Memento
 - 1.8.6. Observer
 - 1.8.7. State
 - 1.8.8. Strategy
 - 1.8.9. Template Method
 - 1.8.10. Visitor
- 1.9. Testing
 - 1.9.1. Unit Tests
 - 1.9.2. Integration Tests
 - 1.9.3. White Box Techniques
 - 1.9.4. Black Box Techniques

- 1.10. Quality
 - 1.10.1. ISO
 - 1.10.2. ITIL
 - 1.10.3. COBIT
 - 1.10.4. PMP

Module 2. Technologies in Mobile Application Development

- 2.1. Mobile Devices
 - 2.1.1. Mobile Devices
 - 2.1.2. Infrastructure of a Mobile Device
 - 2.1.3. Hardware Manufacturers
 - 2.1.4. Software Developers
 - 2.1.5. Service Providers
 - 2.1.6. Platform Providers
 - 2.1.7. Main Platforms
- 2.2. Physical Components of Mobile Devices
 - 2.2.1. Storage
 - 2.2.1.1. Immutable
 - 2.2.1.2. Mutable
 - 2.2.1.3. Temporal
 - 2.2.1.4. External
 - 2.2.2. Presenters
 - 2.2.2.1. Displays, Loudspeakers, Haptic Responses
 - 2.2.3. Input Methods
 - 2.2.3.1. Buttons/Keypads
 - 2.2.3.2. Screens
 - 2.2.3.3. Microphones
 - 2.2.3.4. Movement Sensors
 - 2.2.4. Energy Sources
 - 2.2.4.1. Sources of Energy
 - 2.2.4.2. Adaptive Use of Resources
 - 2.2.4.3. Efficient Programming
 - 2.2.4.4. Sustainable Development
- 2.3. Processors
 - 2.3.1. Central Processor
 - 2.3.2. Other Abstracted Processors
 - 2.3.3. Artificial Intelligence Processors
- 2.4. Information Transmitters
 - 2.4.1. Long Range
 - 2.4.2. Mid-Range
 - 2.4.3. Short Range
 - 2.4.4. Ultra Short Range
- 2.5. Sensors
 - 2.5.1. Internal to the Device
 - 2.5.2. Environmental
 - 2.5.3. Medical
- 2.6. Logic Components
 - 2.6.1. Immutable
 - 2.6.2. Manufacturer Mutable
 - 2.6.3. Available to the User
- 2.7. Categorization
 - 2.7.1. Devices
 - 2.7.2. Smartphones
 - 2.7.2.1. Tablets
 - 2.7.2.2. Multimedia Devices
 - 2.7.2.3. Intelligent Complements
 - 2.7.3. Robotic Assistants
- 2.8. Modes of Operation
 - 2.8.1. Disconnected
 - 2.8.2. Connected
 - 2.8.3. Always Available
 - 2.8.4. Point to Point
- 2.9. Interactions
 - 2.9.1. User-Mediated Interactions
 - 2.9.2. Supplier-Mediated Interactions
 - 2.9.3. Device-Mediated Interactions
 - 2.9.4. Environment-Mediated Interactions

- 2.10. Security
 - 2.10.1. Measures Implemented by the Manufacturer
 - 2.10.2. Measures Implemented by Suppliers
 - 2.10.3. User-Applied Security
 - 2.10.4. Privacy

Module 3. Work Tools for Mobile Application Development

- 3.1. Environment and Tools for Mobile Application Development
 - 3.1.1. Mac OS Environment Preparation
 - 3.1.2. Linux Environment Preparation
 - 3.1.3. Windows Environment Preparation
- 3.2. Command Line
 - 3.2.1. Command Line
 - 3.2.2. Emulators
 - 3.2.3. Command Interpreter
 - 3.2.4. Folder Creation
 - 3.2.5. File Creation
 - 3.2.6. Navigation
 - 3.2.7. Managing Files and Folders Using the Command Line Interface
 - 3.2.8. Licenses
 - 3.2.9. SSH
 - 3.2.10. Command List
- 3.3. Software Repository Git
 - 3.3.1. Version Control System
 - 3.3.2. Git
 - 3.3.3. Repository
 - 3.3.4. Branches
 - 3.3.5. Branch Management
 - 3.3.6. Workflows
 - 3.3.7. Merge
 - 3.3.8. Commands
- 3.4. Web Service Version Control
 - 3.4.1. Remote Repositories
 - 3.4.2. Settings
 - 3.4.3. Authentication
 - 3.4.4. Branching of Software Fork
 - 3.4.5. Git Clone Command
 - 3.4.6. Repositories
 - 3.4.7. Github Pages
- 3.5. Advanced Development Tools for Mobile Applications
 - 3.5.1. Postman
 - 3.5.2. Visual Studio Code
 - 3.5.3. GUI for Databases
 - 3.5.4. Hosting
 - 3.5.5. Complementary Development Tools
- 3.6. Web from the Prism of Mobile Application Development
 - 3.6.2. Protocols
 - 3.6.3. Internet Service Provider
 - 3.6.4. IP Addresses
 - 3.6.5. DNS Name Services
- 3.7. Programming in Mobile Application Development
 - 3.7.1. Programming in Mobile Application Development
 - 3.7.2. Programming Paradigms
 - 3.7.3. Video Game
- 3.8. Application Development Components for Mobiles
 - 3.8.1. Variables and Constants
 - 3.8.2. Types
 - 3.8.3. Operators
 - 3.8.4. Declarations
 - 3.8.5. Loops
 - 3.8.6. Functions and Objects

- 3.9. Data Structure
 - 3.9.1. Data Structure
 - 3.9.2. Linear Structure Types
 - 3.9.3. Functional Structure Types
 - 3.9.4. Tree Structure Types
- 3.10. Algorithms
 - 3.10.1. Algorithms in Programming. Divide and Conquer
 - 3.10.2. Voracious Algorithms
 - 3.10.3. Dynamic Programming

Module 4. Multi-Platform Mobile Web Development

- 4.1. Multi-Platform Web Development
 - 4.1.1. Multi-Platform Web Development
 - 4.1.2. Hybrid vs. Native Apps
 - 4.1.3. Technologies to Create Hybrid Apps
- 4.2. Progressive Web Apps (PWA)
 - 4.2.1. Progressive Web Apps (PWA)
 - 4.2.2. Progressive Web Apps (PWA). Features
 - 4.2.3. Progressive Web Apps (PWA). Construction
 - 4.2.4. Progressive Web Apps (PWA). Limitations
- 4.3. Ionic Framework
 - 4.3.1. Ionic Framework Analysis
 - 4.3.2. Ionic Framework. Features
 - 4.3.3. Building an App with Ionic
- 4.4. Web Development Frameworks
 - 4.4.1. Framework Analysis in Web Development
 - 4.4.2. Web Development Frameworks
 - 4.4.3. Web Frameworks Comparison
- 4.5. Angular Framework
 - 4.5.1. Angular Framework
 - 4.5.2. Using Angular in Multi-Platform Application Development
 - 4.5.3. Angular + Ionic
 - 4.5.4. Building Apps in Angular
- 4.6. React Development Library
 - 4.6.1. JavaScript React Library
 - 4.6.2. JavaScript React Library Use
 - 4.6.3. React Native
 - 4.6.4. React + Ionic
 - 4.6.5. Building Apps in React
- 4.7. Vue Development Framework
 - 4.7.1. Vue Development Framework
 - 4.7.2. Vue Development Framework. Use
 - 4.7.3. Vue + Ionic
 - 4.7.4. Building Apps in Vue
- 4.8. Electron Development Frameworks
 - 4.8.1. Electron Development Frameworks
 - 4.8.2. Electron Development Frameworks. Use
 - 4.8.3. Deploying Our Apps Also on Desktop
- 4.9. Flutter Mobile Device Development Tool
 - 4.9.1. Flutter Mobile Device Development Tool
 - 4.9.2. Use of Flutter SDK
 - 4.9.3. Building Apps in Flutter
- 4.10. Mobile Development Tools Comparison
 - 4.10.1. Tools for Mobile Application Development
 - 4.10.2. Flutter vs. Ionic
 - 4.10.3. Selection of the Most Suitable Stack for Creating an App

Module 5. Database for Mobile Application Development

- 5.1. Databases in Mobile Devices
 - 5.1.1. Data Persistence in Mobile Application Development
 - 5.1.2. Database Capabilities for Mobile Apps
 - 5.1.3. SQL Structured Query Language
- 5.2. Choice of Database for Mobile Applications
 - 5.2.1. Database-Driven Analysis of Applications in Mobile Devices
 - 5.2.2. Database Categories
 - 5.2.3. Database Overview
- 5.3. Development with SQLite
 - 5.3.1. SQLite Database
 - 5.3.2. Deployment of the Model
 - 5.3.3. Connection to SQLite
- 5.4. Development with Oracle Berkeley DB
 - 5.4.1. Berkeley DB Database
 - 5.4.2. Model Deployment
 - 5.4.3. Connection to Berkeley DB
- 5.5. Development with Realm
 - 5.5.1. Realm Capabilities
 - 5.5.2. Database Creation in Realm
 - 5.5.3. Connection to Realm
- 5.6. Development with CouchDB Lite
 - 5.6.1. CouchDB Lite Database
 - 5.6.2. Database Creation with CouchDB Lite
 - 5.6.3. Connection with CouchDB Lite
- 5.7. Development with MySQL Centralized Database
 - 5.7.1. MySQL Database
 - 5.7.2. Deployment of Relational Model with MySQL
 - 5.7.3. Connection to MySQL

- 5.8. Centralized Developments. Oracle, MS SQL Server, MongoDB
 - 5.8.1. Development with Oracle
 - 5.8.2. Development with MS SQL Server
 - 5.8.3. Development with MongoDB
- 5.9. Graph Type Data
 - 5.9.1. Graph Oriented Database
 - 5.9.2. Database Creation with Neo4j
 - 5.9.3. Connection to Neo4j from the Mobile App
- 5.10. Environments with Storage Capacities
 - 5.10.1. Firebase Developments
 - 5.10.2. Core Data Developments
 - 5.10.3. Visual Builder Cloud Service Development

Module 6. Application Development for iOS Systems

- 6.1. Xcode Development Environment
 - 6.1.1. Creation of a Project
 - 6.1.2. Configuration of an Emulator for Compiling
 - 6.1.3. Configuration of a Physical Phone for Compiling
- 6.2. Swift Programming Language
 - 6.2.1. Swift I: Programming Language
 - 6.2.2. Swift II: Functions and Loops
 - 6.2.3. Swift III: Lambdas and Structs
- 6.3. Libraries and Cocoa Pods
 - 6.3.1. Pods: Installation
 - 6.3.2. Configuration of Cocoa Pods
 - 6.3.3. Structure of Cocoa Pods
- 6.4. Libraries: Api, Database and R.swift
 - 6.4.1. Alamofire
 - 6.4.2. SQL Databases with GRDB
 - 6.4.3. R.swift

- 6.5. Screen Design
 - 6.5.1. Design with Storyboard
 - 6.5.2. Responsive Design
 - 6.5.3. View Design by Code and SwiftUI
- 6.6. View Setup
 - 6.6.1. UIViewController and Its Lifecycle
 - 6.6.2. Interaction between Different Screens
 - 6.6.3. Types of Transitions and Modes
- 6.7. Sensors and Localization
 - 6.7.1. Access to Sensors
 - 6.7.2. Access to Foreground Localization
 - 6.7.2. Background Location Access
- 6.8. Architecture
 - 6.8.1. MVP
 - 6.8.2. VIPER
 - 6.8.3. IOS Development Architecture
- 6.9. Monetization and Analytics
 - 6.9.1. Firebase Analytics
 - 6.9.2. Firebase Crashlytics
 - 6.9.3. Monetization and Ads with Google AdMob
- 6.10. App Store and Versioning
 - 6.10.1. Configuration of an App Store Account
 - 6.10.2. Test Flight Versions
 - 6.10.3. Production Launch

Module 7. Continuous Integration Deployments for Mobiles

- 7.1. DevSecOps
 - 7.1.1. DevSecOps Use
 - 7.1.2. Static Analyzers
 - 7.1.3. Dynamic Analysis Safety Tests
- 7.2. Continuous Monitoring
 - 7.2.1. Continuous Monitoring
 - 7.2.2. Continuous Monitoring. Analysis and Advantages
 - 7.2.3. Continuous Monitoring. Platforms

- 7.3. Implementation
 - 7.3.1. Local Machine Implementation
 - 7.3.2. Shared Machine Implementation
 - 7.3.3. Cloud-Based Implementation
 - 7.3.4. Configuration Management

Module 8. Mobile User Experience

- 8.1. User Experience
 - 8.1.1. Client Experience
 - 8.1.2. Client Experience. Requirements
 - 8.1.3. Bidirectionality with the Client
- 8.2. Client Experience. Objectives and Equipment
 - 8.2.1. Client Experience. Objectives and Equipment
 - 8.2.2. Iterative Processes
 - 8.2.3. Information Required
- 8.3. Micro-Interactions
 - 8.3.1. End-to-End Relationship
 - 8.3.2. Interactions
 - 8.3.3. Omnichannel
- 8.4. User Behavior
 - 8.4.1. Foundation Design
 - 8.4.2. Web and Session Analytics
 - 8.4.3. Analytics Experts
- 8.5. State of the Art Technology
 - 8.5.1. Machine Learning
 - 8.5.2. Blockchain
 - 8.5.3. Internet of Things
- 8.6. Technical Components
 - 8.6.1. Technical Components
 - 8.6.2. Advanced Components: Devices
 - 8.6.3. Advanced Components: Different Profiles

- 8.7. Usability
 - 8.7.1. Nielsen Heuristics
 - 8.7.2. User Tests
 - 8.7.3. Usability. Errors
- 8.8. UX Techniques User Experience
 - 8.8.1. Rules
 - 8.8.2. Prototyping
 - 8.8.3. Low-Code Tools
- 8.9. Visual Strategy
 - 8.9.1. User Interface Designer
 - 8.9.2. User Interface Work on the Web
 - 8.9.3. User Interface Work in Applications
- 8.10. Developer Frameworks
 - 8.10.1. CX Frameworks
 - 8.10.2. UX Frameworks
 - 8.10.3. UI Frameworks

Module 9. Mobile Security

- 9.1. Mobile Security Architecture
 - 9.1.1. Physical Security of Devices
 - 9.1.2. Operating System Security
 - 9.1.3. Application Security
 - 9.1.4. Data Security
 - 9.1.5. Communications Security
 - 9.1.6. Security of Enterprise Devices
- 9.2. Securing Mobile Hardware
 - 9.2.1. Mobile Devices
 - 9.2.2. Wearable Devices
 - 9.2.3. Automotive
 - 9.2.4. IoT Devices
 - 9.2.5. TV Devices

- 9.3. Operating System Security
 - 9.3.1. Android Mobile Devices
 - 9.3.2. Apple IOS Mobile Devices
 - 9.3.3. Other Existing Mobile Devices: Blackberry, etc
 - 9.3.4. Wearable Devices
 - 9.3.5. Automotive Operating Systems
 - 9.3.6. Mobile Devices in the Internet of Things (IoT)
 - 9.3.7. SmartTV Devices
- 9.4. Securing Mobile Applications
 - 9.4.1. Android Mobile Devices
 - 9.4.2. Apple IOS Mobile Devices
 - 9.4.3. Other Mobile Devices Blackberry
 - 9.4.4. Wearables Devices
 - 9.4.5. Automotive Operating Systems
 - 9.4.6. Mobile Devices in the Internet of Things (IoT)
 - 9.4.7. SmartTV Devices
- 9.5. Securing Data in Mobile Applications
 - 9.5.1. Android Mobile Devices
 - 9.5.2. Apple IOS Mobile Devices
 - 9.5.3. Other Mobile Devices Blackberry
 - 9.5.4. Wearable Devices
 - 9.5.5. Automotive Operating Systems
 - 9.5.6. Mobile Devices in the Internet of Things (IoT)
 - 9.5.7. SmartTV Devices
- 9.6. Mobile Market Places Security
 - 9.6.1. Google Play by Google
 - 9.6.2. Play Store by Apple
 - 9.6.3. Other Market Places
 - 9.6.4. Mobile Rooting
- 9.7. Multi-Platform Security Solutions
 - 9.7.1. Mobile Device Management (MDM)
 - 9.7.2. Types of Solutions on the Market
 - 9.7.3. Securing Devices Using MDM (Master Data Management)

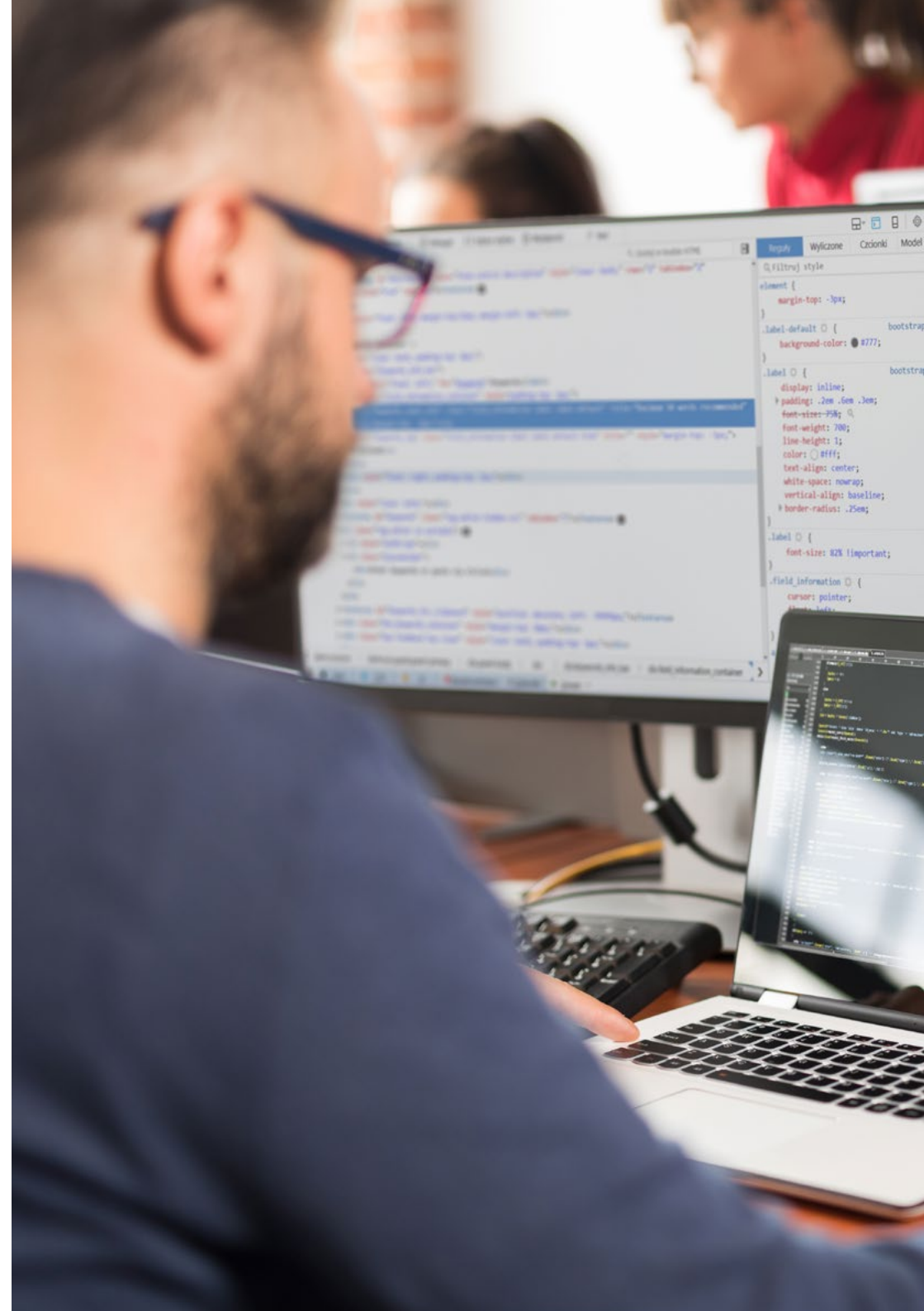
- 9.8. Secure Mobile Application Development
 - 9.8.1. Use of Patterns for Safe Development
 - 9.8.2. Integrated Security Test Management
 - 9.8.3. Secure Application Deployment
- 9.9. Permission Management in Mobile Devices
 - 9.9.1. Permission Systems
 - 9.9.2. Execution of Processes in the Core
 - 9.9.3. Execution Threads and Events
- 9.10. Security Recommendations for Mobile Devices
 - 9.10.1. NSA Recommendations on Mobile Devices
 - 9.10.2. INCIBE Recommendations on Mobile Devices
 - 9.10.3. ISO 27001:2013 Annex

Module 10. Android Programming Language

- 10.1. Android Platform
 - 10.1.1. Android Platform
 - 10.1.2. Android Operating System
 - 10.1.3. Open Handset Alliance in Android Development
- 10.2. Android Architecture
 - 10.2.1. Architectural Elements of an Android System
 - 10.2.2. Communication between Elements
 - 10.2.3. Extensibility of the Android Architecture
 - 10.2.4. Machine Resource Management: Battery and Memory
 - 10.2.5. Android Emulators
- 10.3. Android Linux Core
 - 10.3.1. Composition of the Core
 - 10.3.2. Structural Elements of the Core
 - 10.3.3. Dalvik Virtual Machine
 - 10.3.4. The Android RunTime Virtual Machine (ART)
- 10.4. Native Android Libraries
 - 10.4.1. Native Android Libraries
 - 10.4.2. Support Library
 - 10.4.3. Native Libraries and Extensibility
- 10.5. The Android File and Data System
 - 10.5.1. Structure of a Typical Android Application
 - 10.5.2. YAFFS2 and ext4 File System
 - 10.5.3. Use of SQLite and Room for Data Management
- 10.6. Android Security
 - 10.6.1. Permission System
 - 10.6.2. Digital Signatures in the Android Application Package (apk)
 - 10.6.3. Execution of Processes in the Core
 - 10.6.4. Execution Threads and Events
- 10.7. Structural Components of a Standard Application
 - 10.7.1. View
 - 10.7.2. Activity
 - 10.7.3. Fragment
 - 10.7.4. Service
 - 10.7.5. Intent
 - 10.7.6. Broadcast Receiver and Content Provider
 - 10.7.7. Data Management and User Preferences
- 10.8. Android Versions
 - 10.8.1. Android Versions
 - 10.8.2. Deployment of Android Versions
 - 10.8.3. Dispersion of Android Distributions
 - 10.8.4. Android vs. Apple IOS and Other Mobile Systems
- 10.9. Android for Vehicles
 - 10.9.1. Android and the Automotive World
 - 10.9.2. Structural Elements in an Automotive Android System
 - 10.9.3. Communication between Devices
- 10.10. Android in Home Automation, Wearables and Internet of Things (IoT)
 - 10.10.1. The Connected World
 - 10.10.2. Structural Elements in an Android Home Automation System
 - 10.10.3. Elements of Android Wearable
 - 10.10.4. Android in the Internet of Things (IoT)

Module 11. Frameworks in Android Application Development

- 11.1. Frameworks in Android Application Development
 - 11.1.1. Frameworks in Android Application Development
 - 11.1.2. Frameworks. Typology
 - 11.1.3. Choice of Framework for the Project
- 11.2. Android Framework Implementation
 - 11.2.1. Android Frameworks Core for Java/Kotlin
 - 11.2.2. Jetpack Compose
 - 11.2.3. Frameworks in Other Languages
- 11.3. Library Management Systems in Development
 - 11.3.1. Gradle
 - 11.3.2. Automation with Gradle
 - 11.3.3. Maven Development Tool
- 11.4. Clean Code
 - 11.4.1. Ordered Code
 - 11.4.2. Code Preparation in Android Applications
 - 11.4.3. Bikeshedding and Prioritization
- 11.5. Android Development Patterns
 - 11.5.1. Pattern Categories
 - 11.5.2. Differences between Patterns
 - 11.5.3. Factory, Observer and Singleton
- 11.6. MVP Model, View and Presenter
 - 11.6.1. MVC: Model, View and Controller
 - 11.6.2. Model, View and Presenter
 - 11.6.3. Practical Example: Pokemon Battle
- 11.7. MVVM: Model, View and View Model
 - 11.7.1. MVC vs. MVVM
 - 11.7.2. Model, View and View Model
 - 11.7.3. Practical Example: Pokemon Battle II
- 11.8. Frameworks and Libraries Most Used in Android
 - 11.8.1. API Interaction Libraries
 - 11.8.2. Data Conversion Libraries
 - 11.8.3. Firebase and Firebase Analytics





- 11.9. Android's Visual Framework
 - 11.9.1. Life Cycle of an Android Application
 - 11.9.2. XML View Design
 - 11.9.3. Design of Elements and Animations in XML
- 11.10. Android Frameworks in Other Languages
 - 11.10.1. React Native
 - 11.10.2. Flutter
 - 11.10.3. Ionic

Module 12. Interfaces and Layouts in Android Application Development

- 12.1. Android Interface Lifecycle
 - 12.1.1. Android Lifecycle
 - 12.1.2. Process-Activity Relationship
 - 12.1.3. Application State Persistence
 - 12.1.4. Clean Architecture Applied to Android
- 12.2. Views in Android Application Development
 - 12.2.1. Clean Architecture Presentation Layer
 - 12.2.2. RecyclerView
 - 12.2.3. Adapter View
- 12.3. Layouts in Android Application Development
 - 12.3.1. Layouts in Android
 - 12.3.2. Constraint Layout
 - 12.3.3. Creating Layouts Using Android Studio Layout Editor
- 12.4. Animations in Android Application Development
 - 12.4.1. Icons and Images
 - 12.4.2. Transitions
 - 12.4.3. Difference between Property Animation and View Animation
- 12.5. Activities and Intentions in Android Application Development
 - 12.5.1. Explicit and Implicit Intentions
 - 12.5.2. Action Bar
 - 12.5.3. Communication between Activities

- 12.6. Alternative and System Resources (Material Design, Cardboard, etc.)
 - 12.6.1. Material Design for Android
 - 12.6.2. Multimedia in Android
 - 12.6.3. Virtual Reality with Google Cardboard for Android NDK
- 12.7. Styles and Themes in Android Application Development
 - 12.7.1. Styles in an Android Project
 - 12.7.2. Themes for the Android Project
 - 12.7.3. Reuse of Styles and Themes
- 12.8. Graphics, Touch Screen and Sensors
 - 12.8.1. Working with Advanced Graphics
 - 12.8.2. Management of Touch Screen and Keypad Devices
 - 12.8.3. Use of Android Device Sensors
- 12.9. Augmented Reality Designs
 - 12.9.1. Complex Interfaces Using the Camera
 - 12.9.2. Position Sensors and GPS in Augmented Reality
 - 12.9.3. Presentation on Non-Standard Screens
 - 12.9.4. Common Errors and Problems
- 12.10. Advanced Interface Configuration with AndroidManifest.xml
 - 12.10.1. The Power of the Android Manifest File
 - 12.10.2. Programmatic vs. Declarative Design
 - 12.10.3. Key Components of the File

Module 13. Programming Language in Android Applications. Kotlin

- 13.1. Kotlin Programming Language
 - 13.1.1. Kotlin Programming Language
 - 13.1.2. Kotlin Programming Language. Features
 - 13.1.3. Running a Program in Kotlin
- 13.2. Programming in Kotlin
 - 13.2.1. Structure of a Program in Kotlin
 - 13.2.2. Reserved Words and Syntax
 - 13.2.3. Write through Console and Read User Inputs– Hello World

- 13.3. Types and Variables in Kotlin
 - 13.3.1. Types and Variables in Kotlin
 - 13.3.2. Variable Declaration: Var vs. Val
 - 13.3.3. Operators
 - 13.3.4. Type Conversion
 - 13.3.5. Arrays
- 13.4. Flow Control in Kotlin
 - 13.4.1. Flow Control
 - 13.4.2. Conditional Expressions
 - 13.4.3. Loops
- 13.5. Functions in Kotlin
 - 13.5.1. Functions in Kotlin
 - 13.5.2. Structure of a Function
 - 13.5.3. Scope Functions
- 13.6. Types and Objects in Kotlin
 - 13.6.1. Types and Objects in Kotlin
 - 13.6.2. Classes
 - 13.6.3. Objects
 - 13.6.4. Constructors and Property Initialization
 - 13.6.5. Nested Classes and Inner Classes
 - 13.6.6. Data Classes
- 13.7. Kotlin Inheritance
 - 13.7.1. Heritage
 - 13.7.2. Superclasses and Subclasses
 - 13.7.3. Overwriting Properties and Functions
 - 13.7.4. Inheritance vs. Other Types of Relationship between Classes
 - 13.7.5. Sealed Classes
 - 13.7.6. Listed
- 13.8. Abstract Classes and Interfaces in Kotlin
 - 13.8.1. Abstract Classes and Interfaces
 - 13.8.2. Abstract Classes
 - 13.8.3. Interfaces
 - 13.8.4. Validation and Conversion of Types - Operators Is, When, As

- 13.9. Kotlin Collections
 - 13.9.1. Kotlin Collections
 - 13.9.2. List
 - 13.9.3. Set
 - 13.9.4. Map
- 13.10. Exception and Null Value Handling in Kotlin
 - 13.10.1. Exception and Null Value Handling
 - 13.10.2. Null Value, Nullable and Non-Nullable Types
 - 13.10.3. Exceptions

Module 14. Programming Language in Android Applications. Advanced Kotlin. Genericity, Functional Programming and Parallelism

- 14.1. Genericity in Kotlin
 - 14.1.1. Genericity in Kotlin
 - 14.1.2. Genericity in Collections, Functions, Classes and Interfaces
 - 14.1.3. Covariance and Contravariance: Out or In
- 14.2. Lambda Functions in Kotlin
 - 14.2.1. Lambda Functions
 - 14.2.2. Structure of a Lambda Function
 - 14.2.3. Use of Lambda Functions
- 14.3. Higher Order Functions in Kotlin
 - 14.3.1. Higher Order Functions
 - 14.3.2. Standard Kotlin Higher-Order Functions
 - 14.3.3. Linking Function Calls
- 14.4. Kotlin Extensions
 - 14.4.1. Kotlin Extensions
 - 14.4.2. Extension Functions
 - 14.4.3. Extension Properties
 - 14.4.4. Accompanying Objects
- 14.5. Delegation Pattern in Kotlin
 - 14.5.1. Delegation Pattern
 - 14.5.2. Delegation in Kotlin
 - 14.5.3. Delegated Properties

- 14.6. Annotations and Reflection in Kotlin
 - 14.6.1. Annotations and Reflection
 - 14.6.2. Annotations in Kotlin
 - 14.6.3. Reflection in Kotlin
- 14.7. Testing in Kotlin
 - 14.7.1. Testing in Kotlin
 - 14.7.2. Kotlin Testing Frameworks and Libraries
 - 14.7.3. Kotest
- 14.8. Asynchronous Programming in Kotlin
 - 14.8.1. Asynchronous Programming
 - 14.8.2. Asynchronous Programming Techniques in Kotlin
 - 14.8.3. Comparative Programming Techniques
- 14.9. Coroutine in Kotlin
 - 14.9.1. Coroutines
 - 14.9.2. Channels
 - 14.9.3. Context and Dispatchers
 - 14.9.4. Shared State and Concurrency
 - 14.9.5. Management of Exceptions in Coroutines
- 14.10. Kotlin Ecosystem
 - 14.10.1. Kotlin Ecosystem
 - 14.10.2. Libraries for Kotlin
 - 14.10.3. Tools for Kotlin

Module 15. Data Management in Android Devices

- 15.1. Data Management Typology
 - 15.1.1. Data Management in Mobile Devices
 - 15.1.2. Alternatives for Data Management in Android devices
 - 15.1.3. Data Generation for Work with Artificial Intelligence and Usage Analytics
 - 15.1.4. Performance Measurement Tools for Optimal Data Management
- 15.2. User Preferences Management
 - 15.2.1. Types of Data Involved in Preference Files
 - 15.2.2. User Preferences Management
 - 15.2.3. Exporting Preferences: Permissions Management

- 15.3. File Storage System
 - 15.3.1. File System Classification on Mobile Devices
 - 15.3.2. Internal File System
 - 15.3.3. External File System
- 15.4. JSON Files as Android Storage
 - 15.4.1. Unstructured Information in JSON Files
 - 15.4.2. JSON Data Management Libraries
 - 15.4.3. Use of JSON in Android: Recommendations and Optimizations
- 15.5. XML Files as Android Storage
 - 15.5.1. XML Format in Android
 - 15.5.2. XML through SAX Libraries
 - 15.5.3. XML through DOM Libraries
- 15.6. SQLite Database
 - 15.6.1. Relational Database for Data Management
 - 15.6.2. Database Use
 - 15.6.3. SQLite Methods for Data Management
- 15.7. Advanced Use of SQLite Databases
 - 15.7.1. Failure Recovery Using SQLite Transactions
 - 15.7.2. Use of Caching to Accelerate Data Access
 - 15.7.3. Mobile Databases
- 15.8. Room Library
 - 15.8.1. Architecture of the Room Library
 - 15.8.2. Room Library: Functionality
 - 15.8.3. Room Library: Advantages and Disadvantages
- 15.9. Content Provider to Share Information
 - 15.9.1. Content Provider to Share Information
 - 15.9.2. Content Provider in Android. Technician Use
 - 15.9.3. Content Provider Security
- 15.10. Internet Cloud Data Collection
 - 15.10.1. Android and Cloud Storage Systems
 - 15.10.2. SOAP and REST Services for Android
 - 15.10.3. Problems of Distributed Systems
 - 15.10.4. Internet as Application Data Backup

Module 16. Android Device Tools

- 16.1. Management: "TO DO" Tools
 - 16.1.1. Market Tools
 - 16.1.2. Market Tools. Comparison of Functionalities
 - 16.1.3. Management Tools. Differences
- 16.2. MDM: Enterprise Mobile Device Management
 - 16.2.1. Enterprise Device Control
 - 16.2.2. Analysis of the Main Market Tools
 - 16.2.3. Choosing the Tool
- 16.3. CRM: Market Tools
 - 16.3.1. Analysis of Market Tools with Android Application
 - 16.3.2. Market Tools Efficiency
 - 16.3.3. Market Tools Uses
- 16.4. Android Drones
 - 16.4.1. Drone Control Apps for Android Devices
 - 16.4.2. Autonomous Controls
 - 16.4.3. Drone Uses in Android
- 16.5. Android, Added Value in Banking Platforms
 - 16.5.1. Android in Banking Platforms
 - 16.5.2. Risks and Fraud of Cybercriminals
 - 16.5.3. Uses of Mobile Devices
- 16.6. Brokering in Mobile Devices
 - 16.6.1. Market Tools and Their Use
 - 16.6.2. Comparison of Tools
 - 16.6.3. Choice of Tool for Each Use
- 16.7. Entertainment and Training Tools
 - 16.7.1. Uses
 - 16.7.2. Market Tools
 - 16.7.3. Feature Comparisons between Android Development Tools
- 16.8. IoT Android
 - 16.8.1. Framework and Market Platforms
 - 16.8.2. Android IoT Risks and Considerations
 - 16.8.3. IoT Uses in Android

- 16.9. Process Efficiency
 - 16.9.1. Analysis of Market Tools for Creating Apps
 - 16.9.2. Comparison of Android App Creation Tools
 - 16.9.3. Use Case
- 16.10. Most Downloaded Applications at Present
 - 16.10.1. Most Downloaded Tools at Present
 - 16.10.2. Grouping by Families
 - 16.10.3. Primary, Secondary and Comparative Uses with IOS

Module 17. Responsive Design in Android

- 17.1. Responsive Design
 - 17.1.1. Responsive Design
 - 17.1.2. Usability, Accessibility and UX
 - 17.1.3. Responsive Design. Advantages and Disadvantages
- 17.2. Mobile vs Tablet vs. Web vs. Smartwatches
 - 17.2.1. Different Formats, Different Sizes, Different Needs
 - 17.2.2. Design Problems
 - 17.2.3. Adaptive vs. Responsive
- 17.3. Style Guide
 - 17.3.1. Style Guide Uses
 - 17.3.2. Design Material
 - 17.3.3. Own Style Guide
- 17.4. Flexible Layouts
 - 17.4.1. Flexible Layouts
 - 17.4.2. Basic Layouts
 - 17.4.3. Layouts in Grid
 - 17.4.4. Layouts with RelativeLayout
 - 17.4.5. Layouts with ConstraintLayout
- 17.5. Flexible Resources
 - 17.5.1. Flexible Resources
 - 17.5.2. Images
 - 17.5.3. 9patch
 - 17.5.4. Global Resources

- 17.6. Flexible Navigation
 - 17.6.1. Flexible Navigation
 - 17.6.2. Navigation with Activities
 - 17.6.3. Navigation with Fragments
- 17.7. External Tools
 - 17.7.1. Automatic Generators
 - 17.7.2. Prototyping Tools
 - 17.7.3. Design Tools
- 17.8. Debug and Tests
 - 17.8.1. Debug Layouts
 - 17.8.2. Automatic Tests
 - 17.8.3. Component-Based Development
 - 17.8.4. Testing and Trials Best Practices
- 17.9. Alternatives to Native Android I. Web Pages
 - 17.9.1. Design in a WebView
 - 17.9.2. ChromeCustomTabs
 - 17.9.3. Debug and Tests in Web Pages
- 17.10. Alternatives to Native Android II. Hybrid Applications
 - 17.10.1. React/React Native
 - 17.10.2. Flutter
 - 17.10.3. Ionic
 - 17.10.4. Apache Cordova

Module 18. Marketing in Android Applications

- 18.1. From Customer Service to Customer Experience
 - 18.1.1. Customer Service. Current Customer Development
 - 18.1.2. User with Access to Information: Requirements and Needs
 - 18.1.3. Feedback as a Source of Knowledge
- 18.2. Customer Journey
 - 18.2.1. User Pathway to Conversion
 - 18.2.2. Micro-Segmentation
 - 18.2.3. Cross-Channel Experience

- 18.3. User Experience Measurement
 - 18.3.1. Web and Mobile Architecture
 - 18.3.2. Session Analytics as a New Standard
 - 18.3.3. State of the Art of User Experience
- 18.4. Android Applications Marketing
 - 18.4.1. CX+AI
 - 18.4.2. CX+Blockchain
 - 18.4.3. CX+IoT
- 18.5. CX Products (Customer Experience)
 - 18.5.1. Industry Standards
 - 18.5.2. Telepresence
 - 18.5.3. Customer Experience for All Development Agents
- 18.6. User-Centered Work
 - 18.6.1. Equipment
 - 18.6.2. Designer Thinking
 - 18.6.3. Field Work
- 18.7. User Science
 - 18.7.1. User Science. Golden Rules
 - 18.7.2. Iteration
 - 18.7.3. Common Errors
- 18.8. Prototyping and Wireframing
 - 18.8.1. Prototyping and Wireframing
 - 18.8.2. Hands-on
 - 18.8.3. Advanced Level
- 18.9. Mobiles Interfaces
 - 18.9.1. Visual Design Rules
 - 18.9.2. App Interface Keys
 - 18.9.3. Best Practices in the Development of Mobile Interfaces
- 18.10. Best Practices in Users Experience: Tips for Developers
 - 18.10.1. Level One. Good Practices in CX
 - 18.10.2. Level Two. Good Practices in UX
 - 18.10.3. Level Three. Good Practices in UI

Module 19. Android Application Life Cycle. Cloud, Playstore and Versioning

- 19.1. Software Life Cycle
 - 19.1.1. Software Life Cycle
 - 19.1.2. Agile Methodologies
 - 19.1.3. The Continuous Agile Software Cycle
- 19.2. Manual Product Development
 - 19.2.1. Manual Integration
 - 19.2.2. Manual Delivery
 - 19.2.3. Manual Deployment
- 19.3. Supervised Integration
 - 19.3.1. Continuous Integration
 - 19.3.2. Manual Revision
 - 19.3.3. Static Automatic Revisions
- 19.4. Logical Tests
 - 19.4.1. Unit Tests
 - 19.4.2. Integration Tests
 - 19.4.3. Behavior Tests
- 19.5. Continuous Integration
 - 19.5.1. Continuous Integration Cycle
 - 19.5.2. Dependencies between Integrations
 - 19.5.3. Continuous Integration as a Repository Management Methodology
- 19.6. Continuous Delivery
 - 19.6.1. Continuous Delivery. Types of Problems to Be Solved
 - 19.6.2. Continuous Delivery. Problem Solving
 - 19.6.3. Advantages of Continuous Delivery
- 19.7. Continuous Deployment
 - 19.7.1. Continuous Deployment. Types of Problems to Be Solved
 - 19.7.2. Continuous Deployment. Problem Solving



- 19.8. Firebase Test Lab
 - 19.8.1. Configuration from GCloud
 - 19.8.2. Jenkins Configuration
 - 19.8.3. Use of Jenkins. Advantages
- 19.9. Gradle Configuration
 - 19.9.1. Gradle Automation System
 - 19.9.2. Gradle Build Flavors Component
 - 19.9.3. Gradle Lint Component
- 19.10. Android Application Life Cycle. Example
 - 19.10.1. SemaphoreCI and GitHub Configuration
 - 19.10.2. Configuration of Work Blocks
 - 19.10.3. Promotions and Deployment

“

Start your path to a better future and be part of the change. Design exceptional mobile applications with this program”

04

Teaching Objectives

The technology industry demands versatile professionals capable of adapting to a constantly evolving market. This program provides computer scientists with advanced and updated knowledge on the key technologies of mobile devices for application development. Participants will master the Hardwares and Softwares essential to excel in this sector. Therefore, they will be fully prepared to design, develop and bring to production Applications for Android devices, acquiring the necessary skills to perform autonomously in this competitive field.



“

*Discover an innovative program
that will completely transform
your professional development”*



General Objectives

- ♦ Create functional and attractive solutions for Android and iOS devices, applying best practices in design, programming and user experience
- ♦ Acquire specialized knowledge in the structural components of Android systems, frameworks for multiple architectures and the Kotlin language, optimizing efficiency and security in data management
- ♦ Implement responsive designs and user-centered methodologies, ensuring intuitive and usable interfaces that adapt to different devices and contexts
- ♦ Analyze and adjust continuous integration systems in Android and use technological tools to improve efficiency in business projects and their implementation



You will acquire the necessary skills in application development, thanks to a study process in the technological area that will provide you with the most cutting-edge content"





Specific Objectives

Module 1. Programming Methodologies in Mobile Application Development

- ♦ Analyze agile development methodologies and their application in mobile application programming
- ♦ Explore the mobile application development lifecycle, from design to implementation

Module 2. Technologies in Mobile Application Development

- ♦ Understand the technological advances in mobile platforms and their implications in development
- ♦ Evaluate native and cross-platform development options on mobile devices

Module 3. Work Tools for Mobile Application Development

- ♦ Use integrated development environments such as Android Studio and Xcode
- ♦ Explore collaboration and project management platforms in mobile development

Module 4. Multi-Platform Mobile Web Development

- ♦ Understand the creation of adaptive web applications using technologies such as HTML5, CSS3 and JavaScript
- ♦ Implement efficient cross-platform solutions to ensure a consistent user experience across all mobile devices

Module 5. Databases for Mobile Application Development

- ♦ Understand the structure and design of databases in Mobile Applications
- ♦ Manage local databases on mobile devices using SQLite and other solutions

Module 6. Application Development for iOS Systems

- ♦ Address the fundamentals of mobile application development for iOS devices
- ♦ Master iOS-specific tools and languages, such as Xcode and Swift

Module 7. Continuous Integration Deployments for Mobiles

- ♦ Implement continuous integration pipelines to ensure the quality and functionality of mobile applications
- ♦ Ensure that mobile applications are efficiently deployed in diverse development environments

Module 8. Mobile User Experience

- ♦ Analyze the importance of user experience design in mobile applications
- ♦ Apply usability principles to improve user interaction with mobile applications

Module 9. Mobile Security

- ♦ Apply security principles in the development of applications to protect data and privacy
- ♦ Implement security measures such as data encryption and authentication in mobile applications

Module 10. Android Programming Language

- ♦ Explore the features and functions of the Java language in the Android context
- ♦ Apply Java skills in the creation of simple and efficient Android Applications

Module 11. Frameworks in Android Application Development

- ♦ Integrate frameworks such as Retrofit, Dagger and Glide into Android projects
- ♦ Implement efficient solutions using third party frameworks on Android

Module 12. Interfaces and Layouts in Android Application Development

- ♦ Understand the structure and design of user interfaces in Android
- ♦ Explore tools and best practices to optimize UI design on mobile devices

Module 13. Programming Language in Android Applications. Kotlin

- ♦ Explore the features and advantages of Kotlin over Java in Android development
- ♦ Apply Kotlin in the creation of modern and efficient mobile applications

Module 14. Programming Language in Android Applications. Advanced Kotlin Genericity, Functional Programming and Parallelism

- ♦ Delve into advanced Kotlin programming techniques, such as genericity and type handling
- ♦ Implement functional programming concepts to improve modularity and code efficiency

Module 15. Data Management in Android Devices

- ♦ Delve into the different data storage and management strategies in Android Apps
- ♦ Apply on-premises solutions such as SQLite and cloud storage to efficiently manage data

Module 16. Android Device Tools

- ♦ Explore tools such as Android Debug Bridge and Android Profiler for monitoring and improving application performance
- ♦ Apply best practices and tools to perform quality testing on Android applications

Module 17. Responsive Design in Android

- ♦ Design user interfaces that adapt to different screen sizes on Android devices
- ♦ Apply the principles of responsive design to improve accessibility and usability of applications



Module 18. Marketing in Android Applications

- ◆ Explore digital marketing strategies applied to Android apps
- ◆ Delve into the main techniques of positioning on Google Play Store and improve the visibility of the apps

Module 19. Android Application Life Cycle. Cloud, Playstore and Versioning

- ◆ Understand the lifecycle of Android applications from development to deployment
- ◆ Apply release and update management techniques to Android applications

05

Career Opportunities

Graduates of the Mobile Application Development, Android Expert program will be highly qualified to design and develop multiplatform applications with a specialized focus on Android. They will have extensive knowledge in programming languages, frameworks, databases and advanced tools, applying strategies to maximize the user experience. In addition, they will be prepared to lead technological projects, optimize continuous integration and monetization processes, and solve security and usability problems in mobile devices.



“

You will apply advanced knowledge to create technological solutions that respond to the demands of the mobile market”

Graduate Profile

Graduates of the Mobile Application Development, Android Expert program will be professionals with advanced skills to create innovative and optimized mobile applications for Android devices. They will have a deep knowledge in the use of programming languages, interface design, frameworks and advanced technological tools. In addition, they will be prepared to manage complex projects, implement adaptive solutions and collaborate with multidisciplinary teams to develop customized applications that improve the user experience and respond to market demands.

You will develop skills to innovate in technological environments and collaborate effectively with teams and professionals.

- ♦ **Advanced Mobile Application Development:** Android experts apply techniques and design patterns to create intuitive, high-performance apps, ensuring they work optimally on various versions of Android and iOS
- ♦ **Effective Project Lifecycle Management:** In the field of mobile development, it is essential to efficiently manage all stages of the project lifecycle, from planning to delivery, ensuring tight deadlines and quality in each phase
- ♦ **Innovation and Technical Challenge Resolution:** Developers face and solve complex problems during development, applying innovative technological solutions that improve both functionality and end-user experience
- ♦ **Adaptation to New Technologies:** Professionals stay on the cutting edge of the latest tools and frameworks, incorporating the latest trends in mobile development to improve efficiency and security in applications





After completing the Advanced Master's Degree, you will be able to apply your knowledge and skills in the following positions:

1. **Mobile Application Developer:** Specialist in the creation and design of cross-platform Applications.
2. **Mobile Technology Consultant:** Professional in charge of optimizing technological processes in companies.
3. **Technology Project Leader:** Team manager for the development and deployment of digital solutions.
4. **UX/UI Specialist:** Expert in design and improvement of user experiences for mobile Applications.
5. **Software Architect:** Designer of structures and systems that optimize the performance and functionality of Applications.

“

Complete this program and take a leap in your professional career, standing out in the competitive sector of mobile technologies”

06

Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.



“

TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”

The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

“

*At TECH you will NOT have live classes
(which you might not be able to attend)”*



The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“*TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want*”

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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



A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule”

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.



As such, the best educational materials, thoroughly prepared, will be available in this program:



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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



Interactive Summaries

We present 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".



Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





Case Studies

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.



Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.



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 for future difficult decisions.



Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.



07

Teaching Staff

This program in Mobile Application Development, Android Expert has a highly qualified teaching team, composed of experts in advanced technologies, solution architecture, digital infrastructure and application development. These professionals guarantee high quality content, designed to provide the computer scientist with the necessary tools to achieve success in a constantly evolving industry.





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Boost your profile and add value to your projects with the experience of these specialists”

International Guest Director

Colin Lee is a successful mobile application developer specializing in native Android code, whose influence extends internationally. This expert 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 developed a low-level Android video recorder for the startup Flipgrid, later acquired by Microsoft. In turn, he is the creator of a freight management tool implemented by the transnational Amazon to facilitate the work of its contracted truckers. Likewise, 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

- Senior Android Engineer for Meetup
- 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

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

Management



Mr. Olalla Bonal, Martín

- ♦ Senior Blockchain Practice Manager at EY
- ♦ Blockchain Client Technical Specialist for IBM
- ♦ Director of Architecture for Blocknitive
- ♦ Team Coordinator in Non-Relational Distributed Databases for WedoIT, a subsidiary of IBM
- ♦ Infrastructure Architect at Bankia
- ♦ Head of Layout Department at T-Systems
- ♦ Department Coordinator for Bing Data España SL

Professors

Mr. Gozalo Fernández, Juan Luis

- ♦ Blockchain-based Product Manager for Open Canarias
- ♦ Director Blockchain DevOps Director at Alastria
- ♦ Director of Service Level Technology at Santander Spain
- ♦ Tinkerlink Mobile Application Development Manager at Cronos Telecom
- ♦ IT Service Management Technology Director at Barclays Bank Spain
- ♦ Bachelor's Degree in Computer Engineering from UNED
- ♦ Deep Learning Specialization in DeepLearning.ai

Ms. Del Vado Puell, Andrea

- ♦ Web Developer at Serquo
- ♦ Web Developer at Ribera Salud
- ♦ Software Developer at FutuRS
- ♦ Master's Degree in Application Development and Web Services from the International University of Valencia
- ♦ Degree in Computer Engineering from the Complutense University of Madrid
- ♦ Full Stack Developer MEAN Bootcamp at GeeksHubs Academy
- ♦ Full Stack Developer MEAN Certification

Mr. Grillo Hernández, José Enrique

- ♦ Application Developer and Technology Analyst
- ♦ Senior Mobile Applications Developer at Globant
- ♦ Android Developer at Plexus Tech
- ♦ Senior Android Developer at RoadStr
- ♦ Senior Mobile Developer at Avantgarde IT-Information Technology Services
- ♦ Project Leader at Smartdss
- ♦ Developer at Educatablet
- ♦ Technology Analyst at Corporate Mobile Solutions
- ♦ Master's Degree in System Engineering from the Simón Bolívar University

Ms. Martínez Cerrato, Yésica

- ♦ Responsible for Technical Training at Securitas Seguridad España
- ♦ Education, Business and Marketing Specialist
- ♦ Product Manager in Electronic Security at Securitas Seguridad España
- ♦ Business Intelligence Analyst at Ricopia Technologies
- ♦ Computer Technician and Responsible for OTEC computer classrooms at the University of Alcalá de Henares
- ♦ Collaborator in the ASALUMA Association
- ♦ Degree in Electronic Communications Engineering at the Polytechnic School, University of Alcalá de Henares

Dr. Peralta Martín-Palomino, Arturo

- ♦ CEO and CTO at Prometheus Global Solutions
- ♦ CTO at Korporate Technologies
- ♦ CTO at AI Shepherds GmbH
- ♦ Consultant and Strategic Business Advisor at Alliance Medical
- ♦ Director of Design and Development at DocPath
- ♦ Doctorate in Psychology from the University of Castilla La Mancha
- ♦ Doctorate in Economics, Business and Finance from the Camilo José Cela University
- ♦ Doctorate in Psychology from University of Castilla La Mancha
- ♦ Master's Degree in Executive MBA from the Isabel I University
- ♦ Master's Degree in Sales and Marketing Management from the Isabel I University
- ♦ Expert Master's Degree in Big Data by Hadoop Training
- ♦ Master's Degree in Advanced Information Technologies from the University of Castilla La Mancha
- ♦ Member of: SMILE Research Group

Mr. Natal Rodriguez, Daniel

- ♦ IT Engineer specialized in Appian
- ♦ Appian Developer at Vass, consulting firm specialized in IT solutions
- ♦ Platform Developer at Telefónica
- ♦ Java Programmer at Babel
- ♦ Industrial Engineer from the School of Industrial Engineering of the Polytechnic University of Madrid

Ms. Portalatín Romero, Isabel

- ♦ Computer Engineer
- ♦ Responsible for offers in the area of Informatics to different Public and Private Organizations
- ♦ Online teacher in different Professional Training programs
- ♦ Technical Engineering in Computer Management from the University of Extremadura Polytechnic of Informatics

Mr. Arranz Torres, Héctor

- ♦ Software Project Manager at Ezenit
- ♦ Member of the Operations Team at Cink Venturing
- ♦ Lecturer in programs related to the development of digital projects
- ♦ Degree in Computer Engineering from the Complutense University of Madrid
- ♦ MBA in Business Administration and Management from The Power MBA

Mr. Guerrero Díaz-Pintado, Arturo

- ♦ Director of Customer Experience for IBM
- ♦ Technical Pre-Sales Engineer through Watson Customer Engagement portfolio
- ♦ R&D Network Engineer at Telefónica
- ♦ Degree in Telecommunications Engineering from the University of Alcalá and the Danish Technical University

Mr. Centeno Martín-Romero, Alfonso

- ♦ Cybersecurity Consultant at Deloitte
- ♦ Intern in the Commercial Planning & Business Intelligence department at Telefónica Tech
- ♦ Intern at B2B Market Intelligence
- ♦ Intern in the Financial Derivatives and Equity Analysis department at Ahorro Corporación Financiera
- ♦ Double Degree in Business Administration and Management & International Relations at the Pontifical University of Comillas
- ♦ Bootcamp in Cybersecurity at Ironhack Technology Studies Center

Mr. Noguera Rodríguez, Pablo

- ♦ Software engineer applied to Blockchain solutions at EY
- ♦ Mobile app developer at Bitnovo
- ♦ Developer of native iOS apps at Umani and Stef
- ♦ Freelance Programmer and creator of Aviaze App, in collaboration with Starman Aviation

Dr. Ceballos van Grieken, Ángel

- ♦ Researcher specialized in the application of ICTs in education
- ♦ Author of the Project for the Creation of Educational Contents for Mobile Devices
- ♦ Teacher in postgraduate studies related to ICTs
- ♦ Teacher in university studies related to Computer Science
- ♦ Doctor in Education from the University of the Andes
- ♦ Specialist in Educational Informatics, Simón Bolívar University

Ms. Ochoa Mancipe, Joanna Dulima

- ♦ Senior Development Analyst at Q-Vision Technologies
- ♦ Quality Engineer at Samtel
- ♦ Java Developer at Complemento 360
- ♦ Development Engineer at RUNT
- ♦ Support, Testing and Process and Information Modeling Engineer at the National University of Colombia
- ♦ Development Engineer at Unión Soluciones Sistemas de Información
- ♦ Researcher at the Information Systems and ICT for Organizations Research Group of the National University of Colombia
- ♦ Degree in Systems and Computer Engineering from the National University of Colombia
- ♦ Master's Degree in Information Engineering from the University of the Andes

Mr. Marina Gonzalo, Alberto

- ♦ Head of Mobility Department at Vector ITC/Softtek
- ♦ Teacher at Vector Academy
- ♦ Mobile Applications Developer at Leroy Merlin
- ♦ Senior Technician in Multiplatform Applications Development at IES Mirasierra
- ♦ Analyst Programmer
- ♦ Java Programmer and Application Development at Infored Foundation

Mr. Rodríguez Fuentes, Alberto

- ♦ Process and System Engineer at NTTData
- ♦ Process and System Engineering Technician at NTTData
- ♦ Master's Degree in Cybersecurity and Information Security
- ♦ Degree in Computer Engineering
- ♦ CCNA Security Certification



Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice”

08

Certificate

This Advanced Master's Degree in Mobile Application Development, Android Expert guarantees students, in addition to the most rigorous and up-to-date education, access to an Advanced Master's Degree diploma issued by TECH Global University.



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

This private qualification will allow you to obtain a **Advanced Master's Degree in Mobile Application Development, Android Expert** 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** private qualification 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: **Advanced Master's Degree in Mobile Application Development, Android Expert**

Modality: **online**

Duration: **2 years**

Accreditation: **120 ECTS**



*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.



Advanced Master's Degree
Mobile Application
Development, Android Expert

- » Modality: online
- » Duration: 2 years
- » Certificate: TECH Global University
- » Accreditation: 120 ECTS
- » Schedule: at your own pace
- » Exams: online

Advanced Master's Degree
Mobile Application
Development, Android Expert