

# Postgraduate Diploma

## Android Application Life Cycle



## Postgraduate Diploma Android Application Life Cycle

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/in/information-technology/postgraduate-diploma/postgraduate-diploma-android-application-life-cycle](http://www.techtitute.com/in/information-technology/postgraduate-diploma/postgraduate-diploma-android-application-life-cycle)

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# 01

# Introduction

Android offers a variety of elements in terms of application presentation. To discern the advantages and disadvantages of each of them in your design, it is necessary to have specialized knowledge. This indicates that, in order to be successful in a project, it is necessary to master the tools for security, usability, recognition and data management, as well as the durability and updates that this entails in an environment where even virtual reality and artificial intelligence are becoming popular. For that reason, this program has been created with the most advanced techniques and knowledge about application development and its life cycle, which contains everything you need to become an expert in just 6 months with the use of a 100%online modern methodology.





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*If you want to specialize in the field of Mobile Application Development, delving into its Life Cycle. This qualification is for you”*

Since the beginning of computer systems, the need for communication between the system user and the system itself has been one of the fundamental elements in their design. In the case of Android applications, it is also necessary to control the appropriate interface to interact with users and thus establish a fluid communication between them and the application itself.

This program examines the different types of interfaces and designs available in the operating system from a strictly technological point of view. As well as techniques for generating style libraries and reusable elements in different applications, and the advantages that this brings to a professional creation of Android applications, especially with regard to its applicability for virtual and augmented reality.

On the other hand, the different techniques for the management of network data or services are examined, investigating the functionalities and advantages of each one. In addition to studying security issues when sharing information between applications, either social networks or collaborative Apps, delving into the Content Provider as a resource.

Finally, the knowledge of CI/CD (Continuous Integration & Continuous Deployment) is put into practice as an essential part of software development and its efficiency; based on different concepts, technologies and tools that are analyzed in depth in one of the 3 modules that make up this specialization.

All this is taught through a completely online methodology, based on Relearning, which allows the student to obtain knowledge in an effective and fast way. With content developed by expert teachers and available in different formats for the dynamism of the learning process. It is possible to connect from any device with internet access and download the material to consult it whenever you need it.

This **Postgraduate Diploma in Android Application Life Cycle** contains the most complete and up-to-date educational program on the market. Its most notable features are:

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



*Master the techniques to generate style libraries and reusable elements in different applications and the advantages that this brings to professionally creating Android applications"*

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*Being able to study wherever you are and at your own pace, with content always available, is only possible with the 100% online methodology implemented by TECH. With an intuitive platform that allows you to navigate quickly and efficiently"*

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.

*In this program, you will learn how to manage data securely and efficiently within an Android App and for this you will learn about the Content Provider.*

*You will be an expert professional who knows the entire Android Application Life Cycle. Marking a before and after in your work performance.*

is an online sandbo  
language. Browse code

```
world")  
greet(name: String = "Kotlin") {  
    println("Hello, $name!")  
}
```

# 02 Objectives

The purpose of TECH is to provide the most exclusive and specialized qualifications to professionals, and with this Postgraduate Diploma the professional in the world of IT and new technologies will be able to learn all the basics of developing more efficient and durable applications over time. Handling the appropriate procedures from the initial idea, its conception and the implementation of its update. Achieving the excellence and updating that is required in a market in constant growth and evolution.





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*In only 6 months and from the comfort of any device with internet connection. You will be able to graduate as a Postgraduate Diploma in Android Application Life Cycle. Start now”*

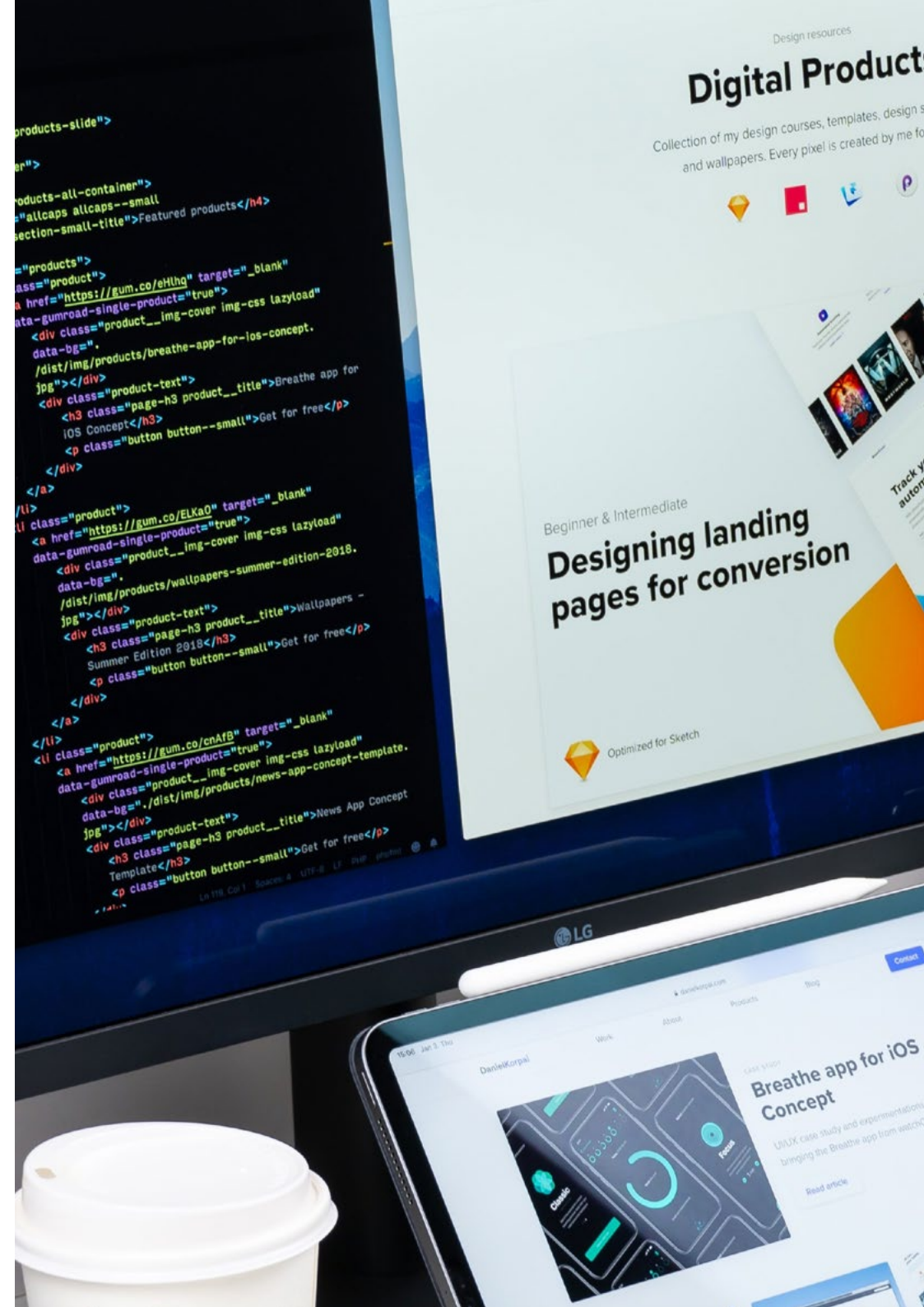


## General Objectives

- ◆ Determine the structural elements of an Android system
- ◆ Establish how to create styles and themes including virtual reality through Layouts
- ◆ Develop a methodology for optimal data management on the device
- ◆ Analyze use cases for Android devices on the market
- ◆ Compile the different stages of a continuous integration cycle focused on Android development



*Being a good programmer is only part of the way, but understanding the systems to make production repeatable, predictable and fast is one of the goals you will achieve after taking this Postgraduate Diploma"*





## Specific Objectives

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### Module 1. 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 2. 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 3. 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

# Course Management

Professionals specialized in the field of new technologies, solution architecture and digital infrastructure, experts in Android programming and application developers lead this Postgraduate Diploma. Betting on the optimization of the learning process of students, who seek in this space the contribution they need for their professional success. Therefore, they advise and accompany the students throughout the process, with TECH's exclusive virtual platform. With the implementation of different interactive media that will make the study experience more dynamic and an avant-garde methodology.





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*Teachers specialized in the subject accompany you on the road to professional growth. With exclusive content designed for this program"*

## 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

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- 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. 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. 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. Gozalo Fernández, Juan Luis**

- ◆ Blockchain-based Product Manager for Open Canarias
- ◆ Blockchain DevOps Director at Alastria
- ◆ Director of Service Level Technology at Santander Spain
- ◆ Director of Mobile Application Development Tinkerlink at Cronos Telecom
- ◆ IT Service Management Technology Director at Barclays Bank Spain
- ◆ Degree in Computer Engineering at UNED (Spanish Open University)
- ◆ Specialization in Deep Learning at DeepLearning.ai

# 04

# Structure and Content

This program has been designed by working professionals who understand the current reality and future trends of Android Application Development operating systems. There are 3 modules that perfectly teach all aspects of interfaces and layouts, the different techniques for data management and the practice of CI/CD (Continuous Integration & Continuous Deployment) to establish systems that ensure the integration, delivery and continuous deployment of software in a repeatable, predictable and fast way. All of this is defined in a comprehensive syllabus that is dynamized with the presentation of different interactive formats within a 100% online platform, to be completed in a maximum of 6 months.





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*A 100% online program designed by experts,  
which brings the latest developments in  
Android Application Development"*

## Module 1. Interfaces and *Layouts* in Android Application Development

- 1.1. Android Interface Lifecycle
  - 1.1.1. Android Lifecycle
  - 1.1.2. Process-Activity Relationship
  - 1.1.3. Application State Persistence
  - 1.1.4. Clean Architecture Applied to Android
- 1.2. Views in Android Application Development (Views)
  - 1.2.1. Clean Architecture Presentation Layer
  - 1.2.2. RecyclerView
  - 1.2.3. Adapter View
- 1.3. Designs in Android Application Development (Layouts)
  - 1.3.1. Layouts in Android
  - 1.3.2. Constraint Layout
  - 1.3.3. Creating Layouts Using Android Studio Layout Editor
- 1.4. Animations in Android Application Development (Animations)
  - 1.4.1. Icons and Images
  - 1.4.2. Transitions
  - 1.4.3. Difference between Property Animation and View Animation
- 1.5. Activities and Intentions in Android Application Development (Activity and Intentions)
  - 1.5.1. Explicit and Implicit Intentions
  - 1.5.2. Action Bar
  - 1.5.3. Communication between Activities
- 1.6. Alternative and System Resources (Material Design, Cardboard, etc.)
  - 1.6.1. Material Design for Android
  - 1.6.2. Multimedia in Android
  - 1.6.3. Virtual Reality with Google Cardboard for Android NDK
- 1.7. Styles and Themes in Android Application Development
  - 1.7.1. Styles in an Android Project
  - 1.7.2. Themes for the Android Project
  - 1.7.3. Reuse of Styles and Themes

- 1.8. Graphics, Touch Screen and Sensors
  - 1.8.1. Working with Advanced Graphics
  - 1.8.2. Management of Touch Screen and Keypad Devices
  - 1.8.3. Use of Android Device Sensors
- 1.9. Augmented Reality Designs
  - 1.9.1. Complex Interfaces Using the Camera
  - 1.9.2. Position Sensors and GPS in Augmented Reality
  - 1.9.3. Presentation on Non-Standard Screens
  - 1.9.4. Common Errors and Problems
- 1.10. Advanced Interface Configuration with AndroidManifest.xml
  - 1.10.1. The Power of the Android Manifest File
  - 1.10.2. Programmatic vs. Declarative Design
  - 1.10.3. Key Components of the File

## Module 2. Data Management in Android Devices

- 2.1. Data Management Types
  - 2.1.1. Data Management in Mobile Devices
  - 2.1.2. Alternatives for Data Management in Android devices
  - 2.1.3. Data Generation for Work with Artificial Intelligence and Usage Analytics
  - 2.1.4. Performance Measurement Tools for Optimal Data Management
- 2.2. User Preferences Management
  - 2.2.1. Types of Data Involved in Preference Files
  - 2.2.2. User Preferences Management
  - 2.2.3. Exporting Preferences: Permissions Management
- 2.3. File Storage System
  - 2.3.1. File System Classification on Mobile Devices
  - 2.3.2. Internal File System
  - 2.3.3. External File System





- 2.4. JSON Files as Storage in Android
  - 2.4.1. Unstructured Information in JSON Files
  - 2.4.2. JSON Data Management Libraries
  - 2.4.3. Use of JSON in Android: Recommendations and Optimizations
- 2.5. XML Files as Storage in Android
  - 2.5.1. XML Format in Android
  - 2.5.2. XML through SAX Libraries
  - 2.5.3. XML through DOM Libraries
- 2.6. SQLite Database
  - 2.6.1. Relational Database for Data Management
  - 2.6.2. Database Use
  - 2.6.3. SQLite Methods for Data Management
- 2.7. Advanced Use of SQLite Databases
  - 2.7.1. Failure Recovery Using SQLite Transactions
  - 2.7.2. Use of Caching to Accelerate Data Access
  - 2.7.3. Mobile Databases
- 2.8. Room Library
  - 2.8.1. Architecture of the Room Library
  - 2.8.2. Room Library: Functionality
  - 2.8.3. Room Library: Advantages and Disadvantages
- 2.9. Content Provider to Share Information
  - 2.9.1. Content Provider to Share Information
  - 2.9.2. Content Provider in Android Technician Use
  - 2.9.3. Content Provider Security
- 2.10. Internet Cloud Data Collection
  - 2.10.1. Android and Cloud Storage Systems
  - 2.10.2. SOAP and REST Services for Android
  - 2.10.3. Problems of Distributed Systems
  - 2.10.4. Internet as a Backup of Application Data

## Module 3. Android Application Life Cycle: Cloud, Playstore and Versioning

- 3.1. Software Life Cycle
  - 3.1.1. Software Life Cycle
  - 3.1.2. Agile Methodologies
  - 3.1.3. The Continuous Agile Software Cycle
- 3.2. Manual Product Development
  - 3.2.1. Manual Integration
  - 3.2.2. Manual Delivery
  - 3.2.3. Manual Deployment
- 3.3. Supervised Integration
  - 3.3.1. Continuous Integration
  - 3.3.2. Manual Revision
  - 3.3.3. Static Automatic Revisions
- 3.4. Logical Tests
  - 3.4.1. Unit Tests
  - 3.4.2. Integration Test
  - 3.4.3. Behavior Tests
- 3.5. Continuous Integration
  - 3.5.1. Continuous Integration Cycle
  - 3.5.2. Dependencies between Integrations
  - 3.5.3. Continuous Integration as a Repository Management Methodology







- 3.6. Continuous Delivery
  - 3.6.1. Continuous Delivery: Types of Problems to Be Solved
  - 3.6.2. Continuous Delivery: Problem Solving
  - 3.6.3. Advantages of Continuous Delivery
- 3.7. Continuous Deployment
  - 3.7.1. Continuous Deployment: Types of Problems to Be Solved
  - 3.7.2. Continuous Deployment: Problem Solving
- 3.8. Firebase Test Lab
  - 3.8.1. Configuration from GCloud
  - 3.8.2. Jenkins Configuration
  - 3.8.3. Use of Jenkins: Advantages
- 3.9. Gradle Configuration
  - 3.9.1. Gradle Automation System
  - 3.9.2. Gradle Build Flavors Component
  - 3.9.3. Gradle Lint Component
- 3.10. Android Application Life Cycle: Example
  - 3.10.1. SemaphoreCI and GitHub Configuration
  - 3.10.2. Configuration of Work Blocks
  - 3.10.3. Promotions and Deployment



*Specializing in the latest topics and exclusive content is only possible with TECH. Your best path to becoming a professional"*

# 05 Methodology

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

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





A close-up photograph of a person's hands typing on a laptop keyboard. The image is partially obscured by a teal diagonal overlay that covers the top right and bottom right portions of the page. The lighting is soft, highlighting the texture of the skin and the keys.

“

*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.*



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

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

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

## Relearning Methodology

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

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

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

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

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





In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

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

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



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



### Study Material

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

These contents are then 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.





# 06 Certificate

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





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

This **Postgraduate Diploma in Android Application Life Cycle** contains the most complete and up-to-date educational program on the market.

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

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

Title: **Postgraduate Diploma in Android Application Life Cycle**

Official N° of Hours: **450 h.**



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

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present online training

development language

classroom

**tech** technological  
university

Postgraduate Diploma  
Android Application  
Life Cycle

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## Android Application Life Cycle

