

Postgraduate Certificate

Advanced React Front-End Development





Postgraduate Certificate Advanced React Front-End Development

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

Website: www.techtitute.com/us/information-technology/postgraduate-certificate/advanced-react-front-end-development



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01

Introduction

With the growth of increasingly complex web applications, experts predict that optimizing software performance will continue to be a priority for companies. In this scenario, it is essential for React developers to acquire new skills to correctly handle the most advanced techniques and to ensure faster user experiences. However, this can be challenging for professionals, as the web development ecosystem and related technologies are constantly evolving. For this reason, TECH creates a university program that will focus on optimal strategies for designing large and complex systems. In addition, it is taught in a convenient 100% online mode so that students have greater flexibility.



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Through this Postgraduate Certificate,
supported by Relearning, you will design
complete and sophisticated web applications
to capture the interest of users"

React applications handle a wide range of sensitive data, ranging from personal information to financial data. It is therefore essential for IT to ensure that they are protected against unauthorized access, tampering and theft. Without a doubt, security is a crucial factor for companies to gain consumer confidence. In this regard, any breach of protection could undermine the public's peace of mind and negatively affect the reputation of the institutions. Therefore, developers need to master the most cutting-edge techniques to implement robust measures to protect applications against potential cyber threats.

To help them with this task, TECH creates a revolutionary Postgraduate Certificate in Advanced React Front-End Development. The curriculum will provide the most effective strategies to prevent XSS vulnerabilities and sensitive data leakage. At the same time, the syllabus will delve into the architecture of the Micro Front-End for graduates to design web applications characterized by their scalability and independent deployment. In tune with this, the academic materials will examine the Server Side Rendering process in order for professionals to optimize the accessibility of websites by providing fully rendered HTML content from the server. In addition, the university program will provide students with the most effective strategies for handling complex and global states.

Because this university program is developed through a revolutionary 100% online methodology, students will have the opportunity to manage their own study time as they wish in order to expand their knowledge. In the same way, you will have at your disposal complete didactic resources elaborated by specialists in Front-End Development, who actively exercise their functions in first level technological entities, where they contribute with innovative solutions to satisfy the requirements of the users.

This **Postgraduate Certificate in Advanced React Front-End Development** contains the most complete and up-to-date program on the market. The most important features include:

- The development of practical cases presented by experts in Front-End Web 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
- 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

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The 100% online methodology characteristic of this program will allow you to get an optimized learning without moving from your own home"

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Looking to implement the most advanced React security strategies in your projects? Achieve it with this program in only 150 hours”

The program's teaching staff includes professionals from the field who contribute their work experience to this educational 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 education 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 during the academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

You will cover Application Profiling to identify performance issues, optimize code and improve application efficiency.

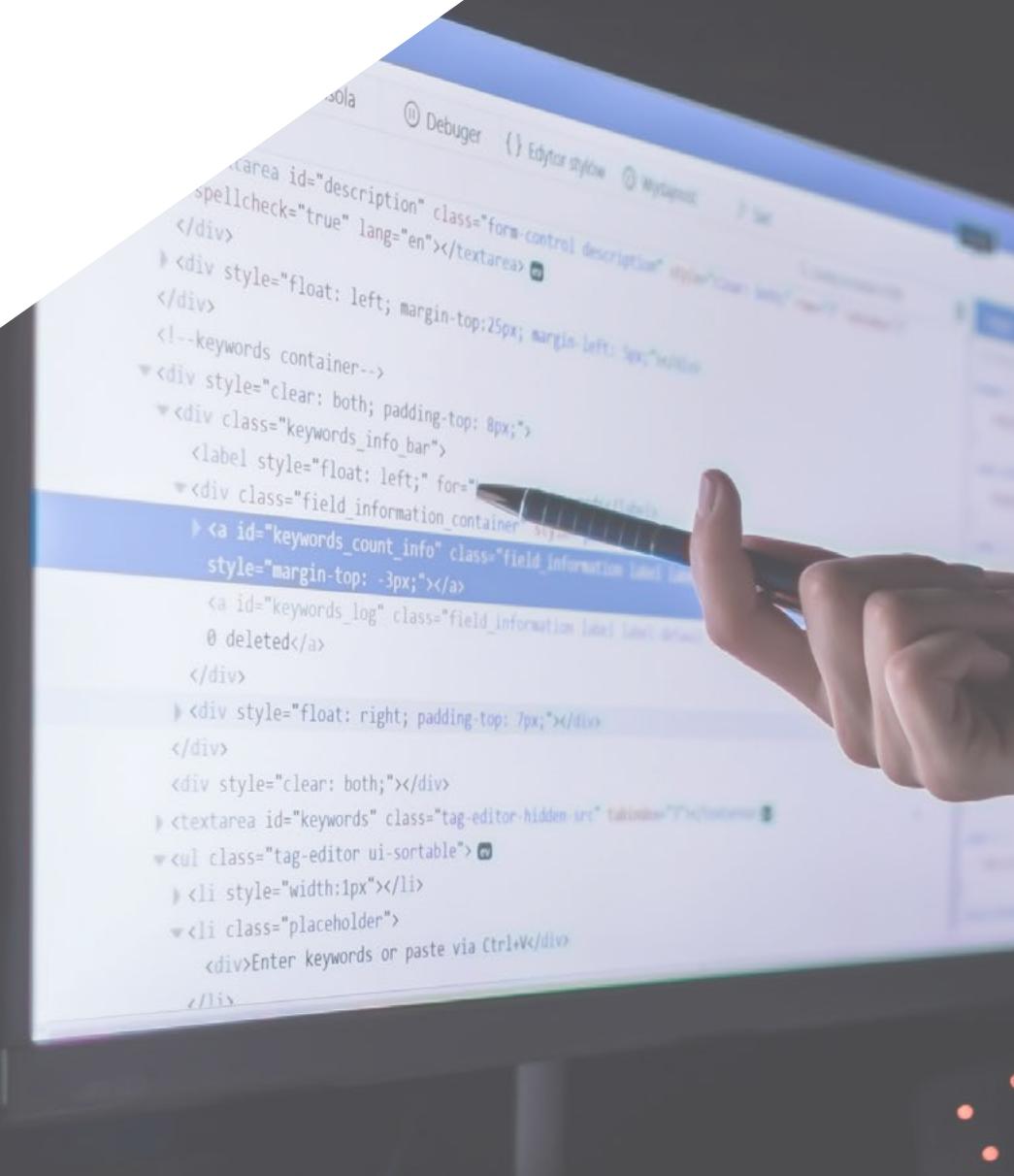
You will have at your disposal a myriad of content of all kinds, including high quality multimedia resources developed by teachers.



02

Objectives

This university program will provide computer scientists with a thorough knowledge of Advanced React Front-End Development. In this sense, graduates will obtain the most advanced techniques to optimize the performance of applications and ensure their correct operation. Likewise, students will develop skills to write unit tests, as well as effective integration tests for components using tools such as Testing. Thanks to this, developers will build complete and sophisticated web applications that guarantee highly satisfactory user experiences.



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You will develop competencies to manage the state of applications in an efficient and scalable way using Context API”



General Objectives

- Develop advanced knowledge of React including full mastery over the use of custom hooks, context APIs, and advanced design patterns, to create sophisticated and efficient front-end applications
- Concretize critical optimization techniques to improve the speed and user experience in React applications, including memorization, deferred loading, and profiling strategies
- Specialize students to in best practices for security, testing, internationalization, and accessibility, ensuring the development of React applications that are secure, reliable and accessible to a global audience
- Implement animations, transitions and other visual effects to enhance the user experience in React applications





Specific Objectives

- Implement custom hooks
- Optimize React applications for superior performance
- Explore advanced React architectures and patterns
- Apply Server-Side Rendering (SSR) and static generation with Next.js
- Perform extensive testing on React applications
- Improve internationalization and accessibility in React

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You will apply advanced design patterns in React to write cleaner, more modular and maintainable code”

03

Course Management

For the design and delivery of this Postgraduate Certificate, TECH has acquired the services of a first class teaching staff. These professionals are highly specialized in Front-End Development, which has allowed them to be part of recognized technological institutions. Firmly committed to offering the best services, they keep abreast of the latest developments in this field. Thanks to this, students will have access to teaching materials that stand out for their full applicability. In this way, the graduates will enjoy an academic proposal that will open up new job opportunities.



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You will enjoy a study plan designed by a distinguished teaching staff, which will guarantee you a totally successful learning experience”

Management



Mr. Utrilla Utrilla, Rubén

- Technology Project Manager at Serquo
- Full-Stack Developer at ESSP
- Junior Full-stack Developer at Sinis Technology S.L.
- Junior Full-stack Developer at Escuela Politécnica Cantoblanco Campus
- Master in AI and Innovation by Founderz
- Degree in Computer Engineering from Universidad Autónoma de Madrid
- Google Cloud Developer course in Google Academic Program

Professors

Ms. Del Vado Puell, Andrea

- Senior iOS Developer at Tecdata
- iOS Developer at Sandav Consulting
- iOS Developer at BBVA
- Hybrid Developer at IMBox
- Degree in Computer Engineering from Universidad Complutense de Madrid
- Certification in Development for Mobile Devices with Android from Comunidad de Madrid
- Certificate in Big Data & Machine Learning from Universidad Complutense de Madrid



04

Structure and Content

Through this university program, computer scientists will achieve an advanced mastery of the React Front-End Development Framework. The curriculum will cover in detail how Custom Hooks work to reuse logic between components in an application to improve modularity, testability and maintainability of the code. The syllabus will also provide graduates with the most advanced pure component and memorization techniques to optimize the performance of web applications. The didactic materials will also highlight the importance of testing both to verify and validate the behavior of the programs.



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A quality syllabus at the forefront of academic teaching will provide you with the latest knowledge in XSS Vulnerabilities”

Module 1. Advanced React Front-End Development

- 1.1. Custom Hooks with React Advanced in Front-End Web Development
 - 1.1.1. Creating Custom Hooks
 - 1.1.2. Composing and Reusing Logic
 - 1.1.3. Best Practices and Advanced Usage Examples
- 1.2. Context API with React in Web Front-End Development
 - 1.2.1. Implementing Context API for Global State Management
 - 1.2.2. Design Patterns and Optimization Strategies
 - 1.2.3. Data Accessibility and Localization
- 1.3. Performance Optimization in Front-End Web Development
 - 1.3.1. Memorization Techniques and Pure Components
 - 1.3.2. Application Profiling and Bottleneck Diagnostics
 - 1.3.3. Deferred Loading and Code-Splitting Strategies
- 1.4. Advanced Architectures and Patterns with React in Front-End Web Development
 - 1.4.1. Micro Front Ends with React
 - 1.4.2. Advanced Architectural Patterns
 - 1.4.3. Design Strategies for Large and Complex Systems
- 1.5. SSR (Server Side Rendering) and Static Generation with Next.js
 - 1.5.1. Advanced Configuration of Next.js for Optimization and SEO
 - 1.5.2. Dynamic Routing and Static Page Generation
 - 1.5.3. Internationalization and Localization in Complex SSR Applications
- 1.6. Testing React Applications in Front-End Web Development
 - 1.6.1. Strategies and Tools for Effective Testing
 - 1.6.2. Mocking and Simulation of APIs and Contexts
 - 1.6.3. Testing Hooks and High Order Components
- 1.7. Complex State Handling in Front-End Web Development
 - 1.7.1. Strategies for Handling Complex and Global States
 - 1.7.2. Use of Libraries such as Redux, MobX, or Zustand
 - 1.7.3. Patterns for State Synchronization and Side Effects





- 1.8. Security in React Applications in Front-End Web Development
 - 1.8.1. Security Strategies in React
 - 1.8.1.1. XSS Vulnerabilities and Data Escapes
 - 1.8.1.2. Use of PropTypes and Typescript
 - 1.8.2. Security in State Handling and Context APIs
 - 1.8.2.1. Sensitive States
 - 1.8.2.2. Data Encryption
 - 1.8.3. Authentication and Access Control Implementation
 - 1.8.3.1. Auth0 or Firebase Auth
 - 1.8.3.2. Custom HOCs and Hooks
- 1.9. Integration with APIs and Microservices in Front-End Web Development
 - 1.9.1. Design Patterns for Efficient Integration with Back Ends
 - 1.9.2. Handling Authentication, Caching and Load States
 - 1.9.3. Strategies for Error and Fallback Handling
- 1.10. State of the Art and Trends of the React Ecosystem in Front-End Web Development
 - 1.10.1. New Features of the React Ecosystem
 - 1.10.2. React and the Future of Web Development
 - 1.10.3. Community, Resources and Emerging Tools

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Access a world-class educational experience today that will elevate your professional horizons. What are you waiting for to enroll?"

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.



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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.

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



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



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

A learning method that is different and innovative

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

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

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

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

Relearning Methodology

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

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

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

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

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





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

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

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

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

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

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



Study Material

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

These contents are then 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.



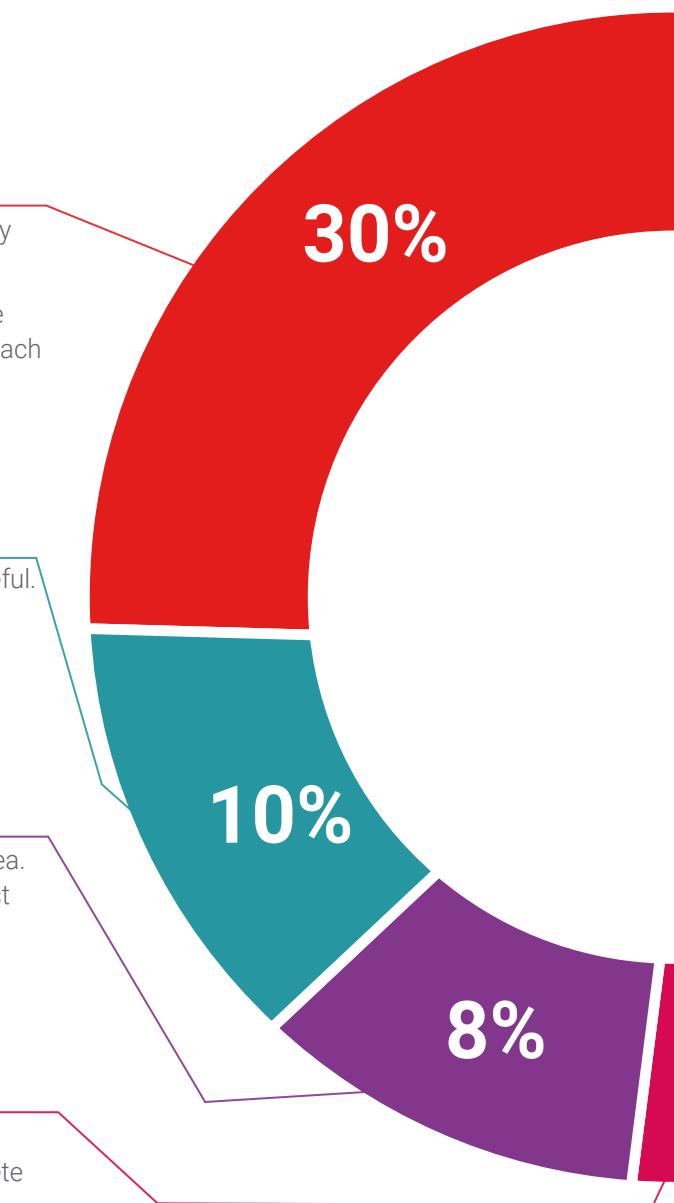
Practising Skills and Abilities

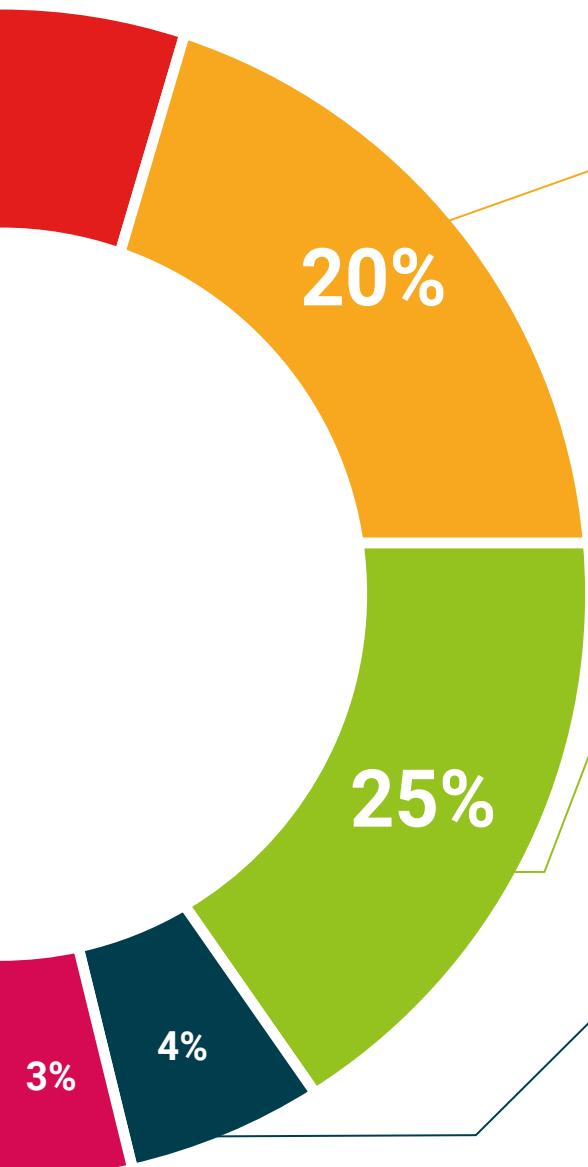
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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 Certificate in Advanced React Front-End Development guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 Certificate in Advanced React Front-End Development** contains the most complete and up-to-date program on the market.

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

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

Title: **Postgraduate Certificate in Advanced React Front-End Development**

Modality: **online**

Duration: **6 weeks**



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



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