TPC
Performance
Centre

Full Stack Web Developer

Bootcamp

TPC
Full Stack Web
Developer

Executive **Snapshot**

Embark on a transformative journey to **become a job-ready full-stack web developer** in just three months (≈480 contact hours) with TPC's rigorous, mentor-guided Full-Stack Web Development Program. Designed to meet QCTO JavaScript Programmer (NQF 4, 60 credits) standards, this bootcamp equips you with the expertise to design, build, and deploy dynamic React + Firebase applications that address real-world business challenges.

No prior coding experience is required—our structured curriculum guides you from foundational concepts to advanced software engineering principles, fostering a systematic approach to problem-solving through code. South African junior React developers command a median salary of R20,300/month, with potential to reach R45,000+ within three years, in a global market projected to grow 8–16% through 2033. **Through hands-on workshops, personalised code reviews, and capstone projects, TPC prepares you to deliver impactful software solutions and launch a rewarding career in technology.**

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Full Stack Web Developer

Why Full-Stack? - Market Opportunity

In an era where digital transformation drives global economies, full-stack web developers—who can design, build, and deploy end-to-end software solutions—are indispensable. From fintech innovators in Johannesburg to SaaS startups in Berlin, modern companies seek versatile professionals capable of delivering seamless user experiences and robust back-end systems. Full-stack expertise empowers you to bridge the gap between front-end aesthetics and back-end functionality, making you a critical asset in today's tech-driven world. The market for full-stack developers is thriving, both locally and globally, fuelled by the relentless growth of digital infrastructure.

SA's tech industry contributes 8 % to national GDP and is adding 34 000+ software posts a year

Local web developers earn an average R450 000 p.a. with strong remote-work premiums

"Software engineer" remains LinkedIn's #1 in-demand job worldwide LinkedIn, and full-stack proficiency tops the freelance skills list for 2025

React dominates the front-end ecosystem according to Stack Overflow's 2024 survey, with JavaScript the most-used language for the 12th year running

Google's 2024 Firebase release added built-in GenAI plugins and Cloud Functions V2—cementing Firebase as the fastest ramp to scalable back-ends

Beyond financial rewards, full-stack development offers intellectual and creative fulfilment. By mastering both front-end and back-end disciplines, you'll solve complex business problems, craft intuitive user experiences, and contribute to the digital solutions shaping industries like e-commerce, healthcare, and finance. With South Africa's tech sector poised for continued growth and global remote work opportunities expanding, there's no better time to invest in full-stack skills. TPC's program positions you to capitalise on these trends, equipping you with the expertise to thrive in a competitive, high-opportunity market.

Core **Skills** You'll Master

Our commitment to your success extends far beyond graduation. TPC's career services are designed to polish your professional profile, build your confidence, and connect you with top employers, ensuring you stand out in a competitive market. Here's how we help you launch your tech career:

Front-end Engineering

- Semantic markup, Flexbox/Grid layouts, mobile-first responsive design, accessibility standards (WCAG 2.2).

JavaScript Mastery

- ESNext syntax, functional & OOP patterns, asynchronous programming, browser APIs.

React Ecosystem

- Hooks, Context, state management (Redux Toolkit), React Router, unit & integration testing.

Back-end & Cloud

- Node, Express, RESTful design, JWT auth, Firebase Auth, Firestore NoSQL data modelling, Cloud Functions, CI/CD.

DevOps & Collaboration

- Git workflows, GitHub Actions, issue tracking, code reviews, Agile ceremonies.

Professional Readiness

- Problem-solving heuristics, technical writing, pair programming, interview drills.

The **Future of Dev Work** in the Age of AI

Artificial intelligence is reshaping software development, amplifying productivity while redefining the human developer's role. Tools like GitHub Copilot, powered by OpenAI's Codex, and emerging platforms like Jules enable developers to generate boilerplate code, automate repetitive tasks, and debug efficiently, boosting productivity by up to 55% in controlled studies.

Yet, AI remains a collaborator, not a replacement.

Human developers are essential for designing robust system architectures, ensuring ethical integrity, and addressing complex edge cases that demand creative problem-solving—skills AI cannot replicate. As AI adoption accelerates, the demand for AI-literate engineers is surging, with a 59% increase in job postings for such roles in 2024 alone. By 2030, up to 70% of job skills are expected to evolve, prioritising adaptable, full-stack developers who can harness AI to deliver innovative solutions.

Far from diminishing opportunities, AI is expanding the developer's scope. The U.S. Bureau of Labor Statistics projects a 25% growth in software development jobs through 2032, outpacing most industries, driven by the need for professionals who can integrate AI into workflows, interpret data-driven insights, and maintain code quality. Emerging roles, such as prompt engineering and AI model oversight, are redefining career paths, while traditional skills like system design and user experience remain critical.

However, AI-generated code can introduce security risks or lack robustness, underscoring the need for developers skilled in reviewing and refining AI outputs. The 2024 Stack Overflow Developer Survey notes that 78% of developers now use or plan to adopt AI tools, reflecting their integration into standard practice.

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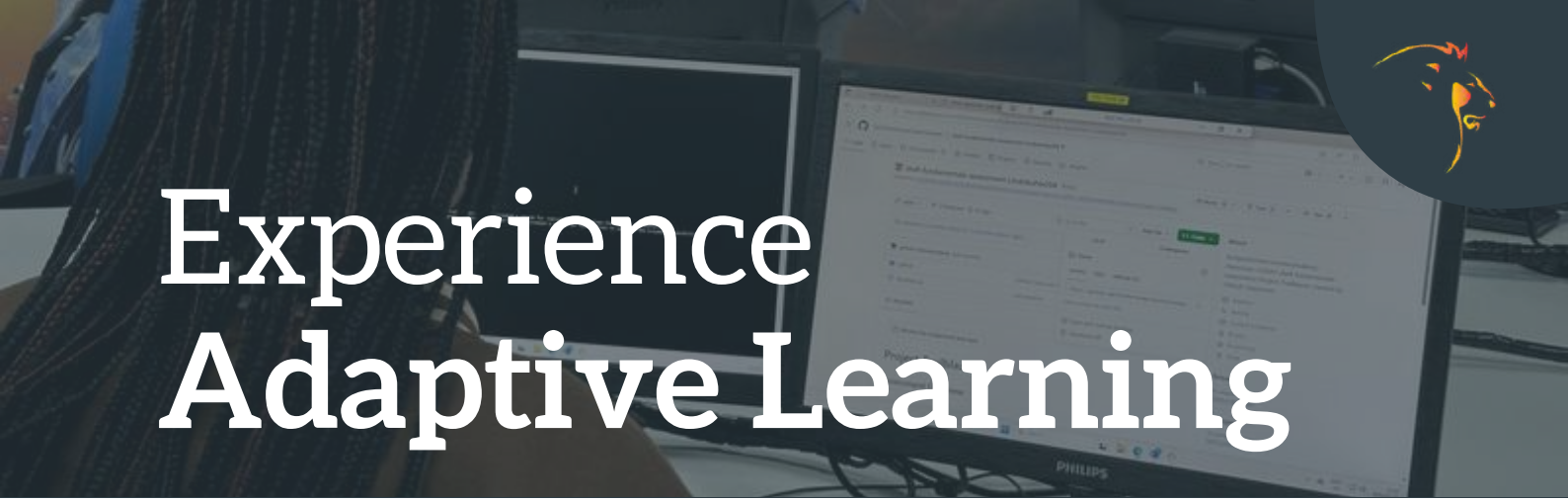
TPC and AI-Augmented Software Development

TPC's Full-Stack Web Development Program is designed for this AI-augmented future. You'll master industry-leading generative AI tools—GitHub Copilot for real-time code suggestions, Firebase Genkit for AI-enhanced cloud functionality, and OpenAI Codex for advanced code generation—embedded throughout the curriculum. From week one, you'll learn to leverage these tools to streamline coding tasks, while honing the critical thinking and architectural skills needed to guide AI effectively. Capstone projects integrate AI-assisted development with human-led design, ensuring you graduate ready to co-create with AI, not compete against it. By combining React and Firebase proficiency with AI literacy, TPC equips you to thrive in a dynamic, high-demand market where versatile, AI-savvy developers are the cornerstone of innovation.

Program at a Glance

Item	Detail
Duration	3 months full-time (Mon–Fri, ±40 h/week)
Delivery	Live workshops + guided labs + mentor code reviews (48 h turnaround)
Stack	HTML / CSS • JavaScript ESNext • React 18 • Node & Express • Firebase Auth, Firestore, Functions & Hosting
Accreditation	QCTO Skills Programme: JavaScript Programmer (SP-460, 60 credits)
Capstones	4 project sprints culminating in a cloud-deployed portfolio app
Career Support	CV &. GitHub audit, mock technical interview, job-placement partner network



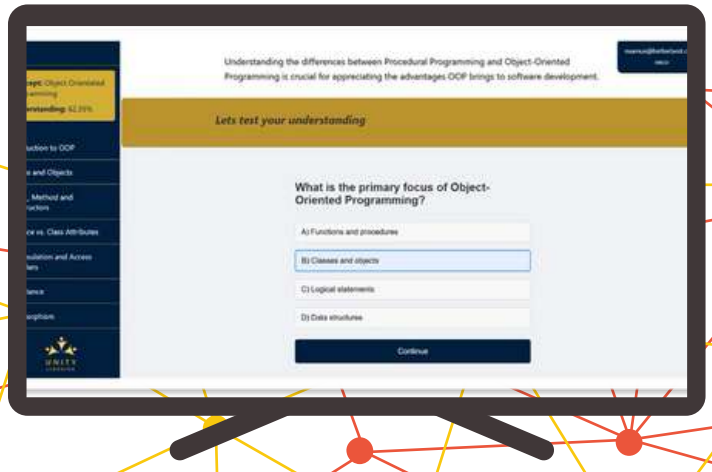
Experience Adaptive Learning

Your Personalised Pathway Powered by Unity Learning

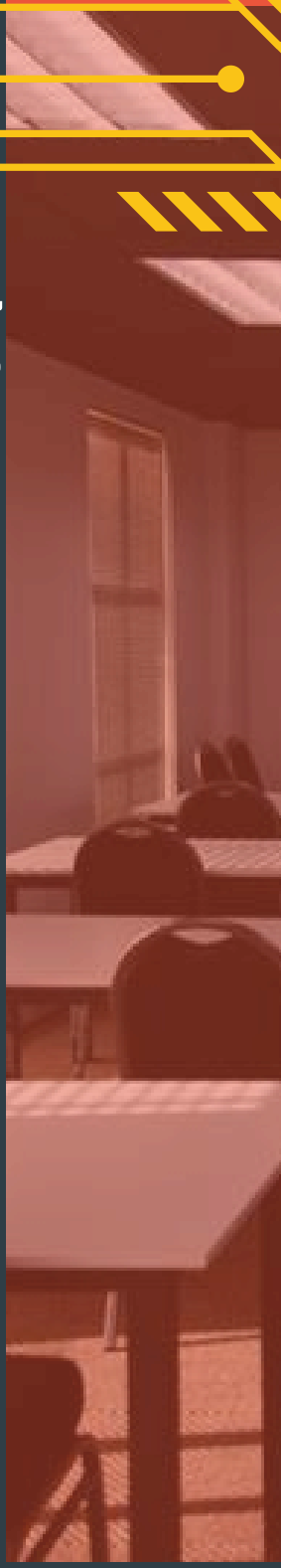
At TPC, we recognise that every learner is unique, with distinct strengths, learning styles, and goals. To ensure you thrive in our Full Stack Web Developer program, we've developed an intelligent, **AI-driven platform that delivers a truly personalised learning experience.** Unlike traditional one-size-fits-all bootcamps, our adaptive learning system dynamically tailors' content, exercises, and pacing to your individual needs, maximising engagement, retention, and **mastery of critical skills** like React, Firebase, and AI tools (GitHub Copilot, OpenAI Codex). This innovative approach empowers you to learn efficiently and confidently, setting you on a direct path to becoming a job-ready full-stack developer.

How Adaptive Learning Works

Our platform uses advanced algorithms to **analyse** your progress, learning preferences, and performance in real time. From the moment you begin, it assesses your responses to coding exercises, quizzes, and capstone projects, identifying areas of strength and opportunities for growth. Based on this data, the system adjusts the difficulty, format, and delivery of learning materials to suit your style - whether you excel with hands-on coding challenges, benefit from additional conceptual explanations, or prefer a faster-paced progression. For example, if you grasp JavaScript fundamentals quickly, the platform may introduce advanced topics like async/await earlier; if you need more practice with CSS, it will provide targeted exercises to build confidence. This dynamic **personalisation** ensures you're always challenged without feeling overwhelmed, creating a learning journey as unique as you are.



Benefits of Adaptive Learning



Personalised Pace and Content:

The platform adapts to your learning speed, delivering content that aligns with your current skill level, whether you're a beginner or have some coding experience, ensuring you stay engaged and progress efficiently.

Enhanced Retention:

By tailoring exercises to your learning style - visual, kinesthetic, or analytical - the system reinforces concepts in ways that resonate, improving long-term mastery of complex topics like OOP.

Seamless Integration with AI Tools:

The platform incorporates AI-driven development tools like GitHub Copilot and OpenAI Codex, guiding you to use them effectively in your personalised workflow, preparing you for the AI-augmented tech landscape.

Confidence Without Pressure:

Adaptive learning creates a supportive environment where you can focus on growth without the fear of falling behind, complementing our 1:1 mentorship and professional code reviews.

Our Learning Philisophy

At TPC, we believe that the fastest path to becoming a job-ready full-stack web developer is through practical, industry-aligned training delivered by those who live and breathe code. Our programs are built on a philosophy that prioritises real-world skills, personalised mentorship, and a supportive community, ensuring you graduate not just with technical expertise but with the confidence and connections to thrive in the tech industry.

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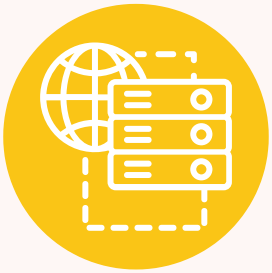
Here's what **Sets TPC Apart**

Learn from Industry Professionals, Not Professors

Our instructors are seasoned senior developers with years of experience building and deploying applications in fast-paced tech environments. Forget academic theory or "fluff" - every lesson is rooted in industry relevance, teaching you the hardcore skills needed to excel as **a full-stack developer.** Beyond core fundamentals, you'll master the "tricks of the trade"—practical techniques and problem-solving strategies that only come from real-world experience. This hands-on approach ensures you're equipped to deliver solutions that meet professional standards from day one.

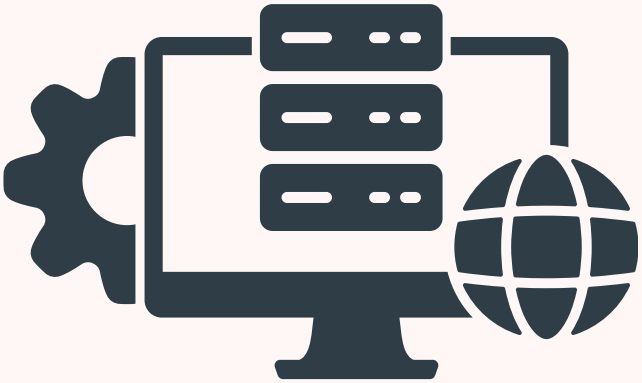
Personalised 1:1 Mentorship

Learning to code is a journey, and at TPC, you're never alone. You'll be paired with a dedicated mentor - a senior developer who provides tailored guidance through regular 1:1 session. This close relationship fosters a safe, judgment-free space to discuss challenges, explore roadblocks, and track your progress at a pace that suits you. Free from the fear of failure, you'll build confidence as you tackle complex concepts and refine your skills, knowing your mentor is invested in your success.



Code-Driven Instruction, Not Slides

Say goodbye to PowerPoint presentations and passive lectures. At TPC, you'll learn directly in the code editor, where concepts come to life through live coding, debugging, and hands-on exercises. Every lesson is interactive, ensuring you gain practical experience that translates seamlessly to the workplace.



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Here's what Sets TPC Apart

Professional Code Review

What truly distinguishes TPC is our rigorous code review process. Your work will be meticulously assessed by experienced developers who provide detailed, constructive feedback within 48 hours, mirroring industry practices. This intensive review not only sharpens your coding skills but also immerses you in professional standards—such as clean code, scalability, and security—from the outset. By internalising these best practices, you'll graduate with the skills and polish employers are looking for.

A Vibrant Community of Learners

At TPC, you're not just a student—you're part of a dynamic community of like-minded individuals united by a passion for technology. Through group workshops, peer coding challenges, and online forums, you'll forge lasting relationships that provide support and inspiration throughout the program and beyond. Our community extends to alumni and industry partners, offering networking opportunities that can open doors to your future career.

Straight Talk, Real Results

We believe in honesty and transparency. You won't find inflated job market stats or overhyped promises at TPC. Instead, we provide clear, realistic insights into the opportunities and challenges of a **full-stack development career** in an AI-augmented world. Our focus is on delivering measurable outcomes: a portfolio of deployed applications, mastery of in-demand tools, and the skills to compete in a global market. With TPC, you get the truth—and the training—to succeed.

Join us to experience a learning environment where industry expertise, personal support, and community spirit converge to transform you into a confident, capable developer ready to shape the future of tech.

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Program Outline

TPC's Full-Stack Web Development Program is a 3-month journey that takes you from novice to job-ready developer, equipped to build and deploy modern web applications using React, Firebase, and AI tools like GitHub Copilot and OpenAI Codex. Aligned with QCTO JavaScript Programmer (NQF 4, 60 credits) standards, our syllabus progresses through three core phases, each designed to build your skills systematically while leveraging our adaptive learning platform for a personalised experience. From foundational coding to full-stack mastery, here's how we prepare you for a thriving tech career.

Orientation and Fundamentals (Weeks 1–2)

Kickstart your journey with an introduction to the tech industry, agile principles, and "thinking like a programmer." Learn web basics (HTML, CSS, HTTP, Git) to create simple, responsive pages, setting the stage for deeper coding skills.

Core Programming Skills (Weeks 3–6)

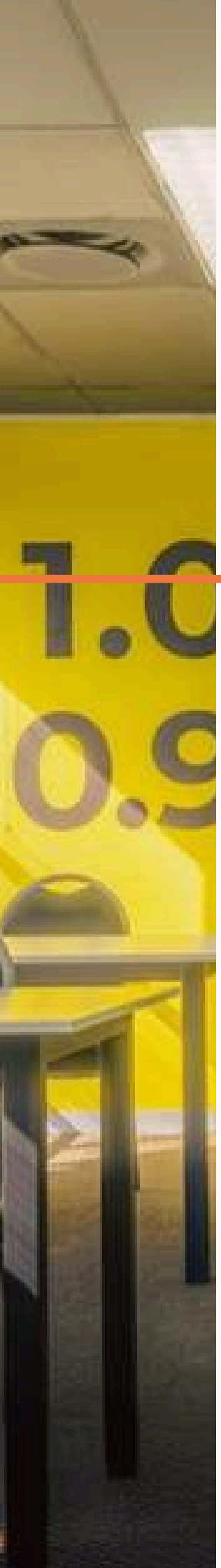
Dive into JavaScript essentials—variables, control structures, functions, and async programming—while building interactive browser apps. Explore React for front-end development, mastering components, state management, and testing to craft polished user interfaces.

Full-Stack and Cloud Integration (Weeks 7–10)

Advance to back-end development with Node.js, Express, and Firebase, learning to build RESTful APIs, manage databases, and deploy serverless applications. Integrate React front-ends with Firebase back-ends, incorporating AI-driven features using tools like Firebase Genkit.

Capstone and Career Preparation (Weeks 11–12)

Conclude with a final capstone project—a full-stack React + Firebase app with CI deployment—showcasing your skills in a professional portfolio. Receive career coaching, CV workshops, and mock interviews to ensure you're ready to launch your tech career, supported by TPC's hiring network.



Curriculum Roadmap

Week 1

Focus:
Web foundations, HTTP, Git, agile mindset
Milestone:
Push first static site to GitHub Pages

Week 2

Focus:
Semantic HTML, CSS3, responsive design, UX heuristics
Milestone:
Wire-frame → responsive landing page

Week 3

Focus:
JS syntax, control flow, arrays, debugging
Milestone:
Console-based mini-game

Week 4

Focus:
Functions, async / await, DOM, fetch API
Milestone:
Interactive browser app (Capstone I)

Week 5

Focus:
React fundamentals (components, JSX, state)
Milestone:
Single-page interface

Week 6

Focus:
Routing, forms, Context / Redux, unit testing
Milestone:
Deployed React SPA

Week 7

Focus:
UI libraries, accessibility, Git workflows
Milestone:
Team pull-request sprint

Week 8

Focus:
Advanced JS (OOP), animations, error boundaries
Milestone:
Polished feature release (Capstone II)

Week 9

Focus:
Node runtime, npm, Express routing & middleware
Milestone:
REST API skeleton

Week 10

Focus:
CRUD patterns, JWT auth, security

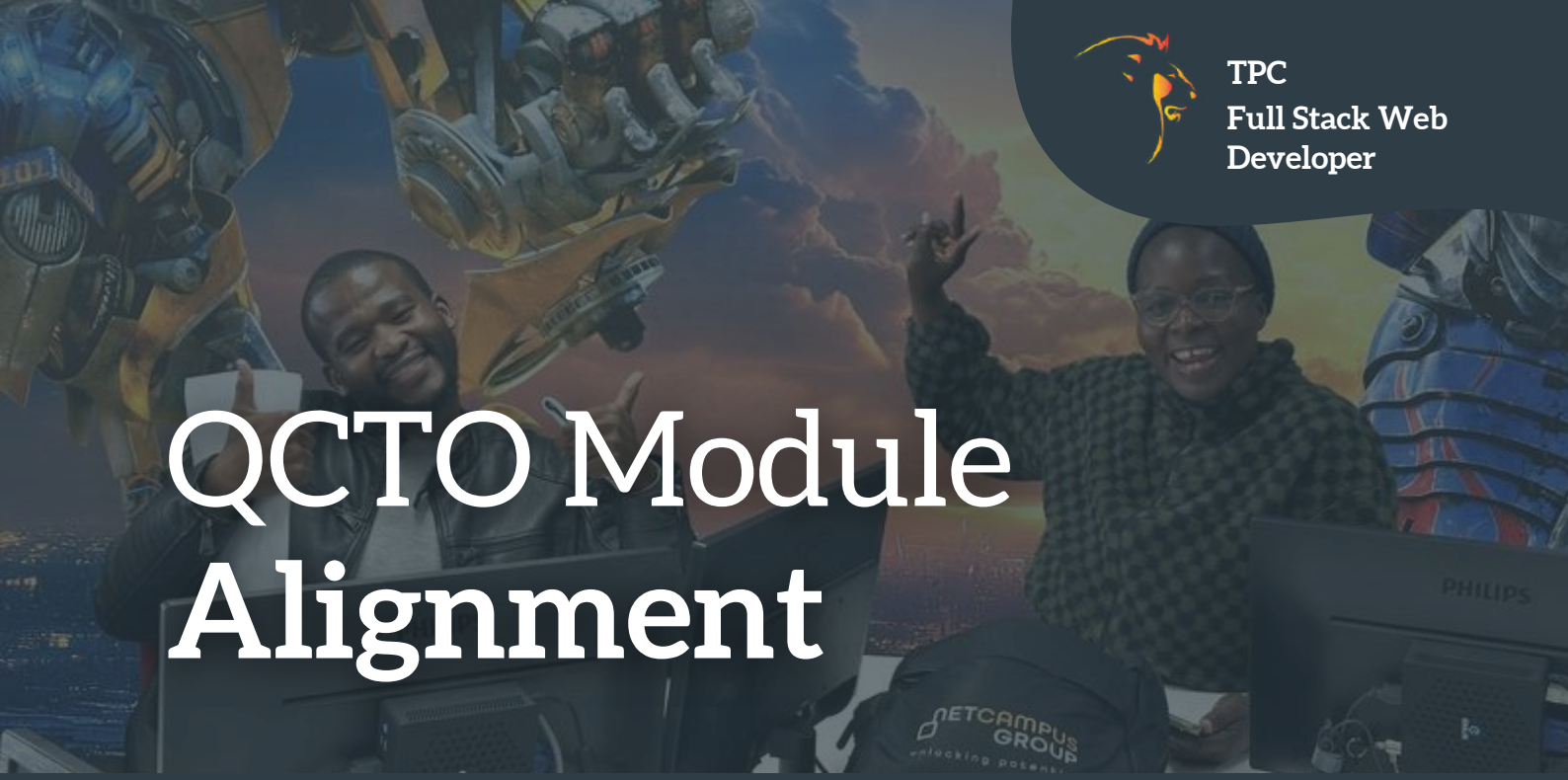
Milestone:
Secure API with Postman tests

Week 11

Focus:
Firebase Auth, Firestore modelling, Cloud Functions, Storage
Milestone:
Full-stack integration

Week 12

Focus:
DevOps pipelines, final project build & review
Milestone:
Demo day (Capstone III)



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QCTO Module Alignment

KM-01 Fundamentals
Weeks 1-2 | HTML/CSS assessments, Git lab

KM-02 JS Principles
Weeks 3-4 | JS quizzes & code review

KM-03 Advanced JS & Web APIs
Weeks 5-11 | React + Node feature labs

PM-01 / PM-02 Individual Tasks
Weeks 1-4 | Capstone I repo

PM-03 Collaborative Project
Weeks 7-8 | Pull-request audit

PM-04 Integrated Assessment
Weeks 12 | Capstone III & FISA rubric

Career Paths

Graduating from TPC's Full-Stack Web Development Program opens doors to a range of dynamic, high-demand careers in the tech industry. As a full-stack developer trained in React, Firebase, and AI-driven tools like GitHub Copilot and OpenAI Codex, you'll possess the versatility to tackle both front-end and back-end challenges, making you a valuable asset in South Africa's growing tech sector and the global digital economy. Whether you're drawn to crafting seamless user interfaces, building robust server-side systems, or integrating AI into innovative applications, our QCTO-aligned curriculum, adaptive learning platform, and professional mentorship prepare you to excel in diverse roles. Below, we explore key career paths, their responsibilities, and earning potential, grounded in market insights.

Front-End Developer

Front-end developers create the visual and interactive elements of web applications, ensuring users enjoy intuitive, engaging experiences. Leveraging your mastery of React, JavaScript, and CSS from TPC's program, you'll build responsive, accessible interfaces that bring designs to life. Responsibilities include:

- Developing dynamic client-side features using React, JavaScript, and frameworks like Material UI or Tailwind.
- Implementing user experience (UX) enhancements based on wireframes and feedback.
- Optimising web performance and accessibility for diverse devices and audiences.
- Collaborating with designers and back-end developers to deliver cohesive applications. With JavaScript and React dominating the 2024 Stack Overflow Developer Survey as the most-used technologies, front-end developers are in high demand. In South Africa, average salaries range from R360,000 to R600,000 per year, with juniors starting at R20,300 per month and seniors reaching R50,000+.

Back-End Developer

Back-end developers power the server-side logic, databases, and APIs that drive web applications. Your TPC training in Firebase, Node.js, and Express equips you to build scalable, secure systems that handle data and functionality seamlessly. Key responsibilities include:

- Designing and maintaining RESTful APIs for front-end integration.
- Managing cloud-based databases like Firebase Firestore, including CRUD operations and security rules.
- Deploying serverless functions and ensuring system reliability in cloud environments.
- Exploring emerging technologies, such as Firebase's GenAI plugins, to enhance functionality. South Africa's tech sector, contributing 8% to GDP and adding 34,000+ jobs annually, relies on back-end expertise. Average salaries range from R400,000 to R650,000 per year, with strong remote work opportunities due to global demand.

Full-Stack Developer

Full-stack developers combine front-end and back-end skills to deliver end-to-end solutions, making them indispensable in startups and enterprises alike. TPC's comprehensive curriculum, including capstone projects like a deployed React + Firebase application, prepares you to design, build, and deploy complete systems. Responsibilities include:

- Developing full-stack applications, from user interfaces to server-side logic and databases.
- Integrating AI tools like GitHub Copilot to streamline coding and enhance productivity.
- Collaborating with cross-functional teams to solve complex business problems.
- Maintaining and scaling applications in cloud environments like Firebase. Full-stack developers are highly sought after, with "software engineer" ranked as LinkedIn's #1 in-demand job for 2025. In South Africa, salaries average R450,000 per year, ranging from R360,000 for juniors to R720,000 for seniors, with significant growth potential within three years.

AI-Enhanced Developer

As AI reshapes software development, a new breed of developers specialises in integrating AI tools and models into applications. TPC's focus on AI literacy, through tools like GitHub Copilot and OpenAI Codex, positions you for this emerging role. Responsibilities include:

- Using AI-driven code assistants to accelerate development and debug efficiently.
- Integrating generative AI features, such as Firebase Genkit, into web applications.
- Reviewing AI-generated code for security, robustness, and alignment with project goals.
- Collaborating with data scientists to implement AI-driven functionalities like chatbots or analytics. With a 59% increase in demand for AI-literate engineers in 2024, this role offers cutting-edge opportunities. South African salaries align with full-stack ranges (R360,000–R720,000), with premiums for AI expertise in global remote roles.

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Comprehensive Career Support

Our commitment to your success extends far beyond graduation. TPC's career services are designed to polish your professional profile, build your confidence, and connect you with top employers, ensuring you stand out in a competitive market. Here's how we help you launch your tech career:

Portfolio and Technical CV Development

Work with our career coaches to craft an industry-ready CV and a standout portfolio showcasing your capstone projects, such as a deployed React + Firebase application. We guide you in presenting your technical skills and AI-augmented workflows to align with employer expectations, highlighting your ability to deliver real-world solutions.

QCTO Certification

Graduates of the QCTO-accredited program receive a JavaScript Programmer (NQF 4, 60 credits) certificate, a recognised credential that validates your expertise in full-stack development and enhances your employability. Non-credit-bearing learners still gain a TPC completion certificate, affirming your proficiency in cutting-edge technologies.

Interview Preparation

Prepare for technical interviews with confidence through mock interviews and expert coaching from senior developers who've navigated the hiring process themselves. You'll learn to tackle coding challenges, articulate your problem-solving approach, and showcase your mastery of React, Firebase, and AI tools, giving you a competitive edge.

Access to Our Hiring Network

TPC partners with leading tech employers and startups across South Africa and beyond, connecting you to job and internship opportunities. Our career team works to facilitate placements within six months of graduation, leveraging our industry relationships to open doors to roles that match your skills and ambitions.

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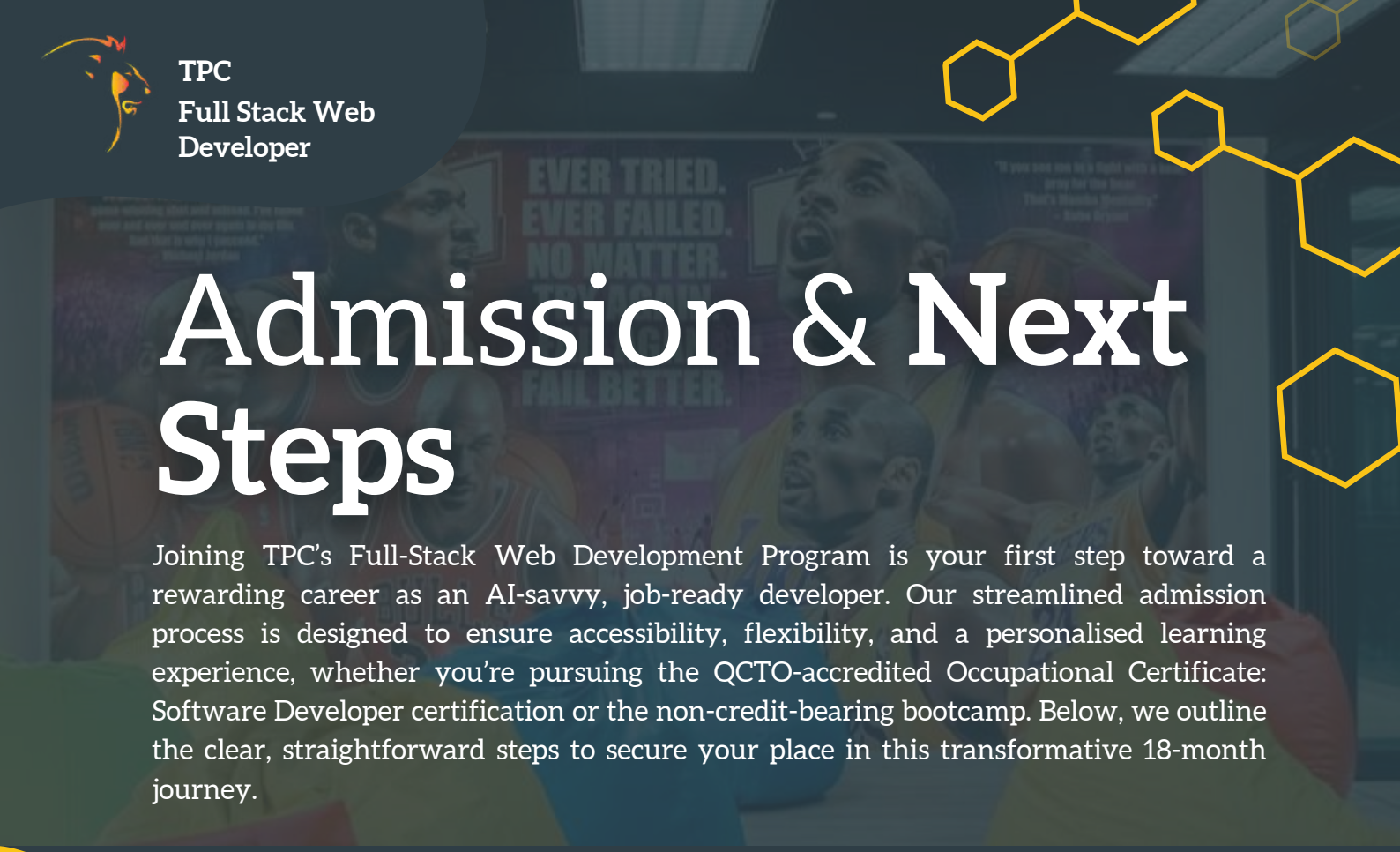

Admission & Next Steps

Joining TPC's Full-Stack Web Development Program is your first step toward a rewarding career as an AI-savvy, job-ready developer. Our streamlined admission process is designed to ensure accessibility, flexibility, and a personalised learning experience, whether you're pursuing the QCTO-accredited Occupational Certificate: Software Developer certification or the non-credit-bearing bootcamp. Below, we outline the clear, straightforward steps to secure your place in this transformative 18-month journey.

1. Apply Online

Begin by completing our user-friendly online application form at [https://techperformancecentre.com/programs/softwareengineer]. For the QCTO-accredited program, you'll need to submit supporting documents, including a certified copy of your ID and proof of your highest qualification (minimum requirement: Grade 12 or equivalent). No prior coding experience is necessary—our curriculum is crafted to guide beginners to advanced proficiency. Alternatively, you can opt for the non-credit-bearing bootcamp, which requires no supporting documents and offers the same hands-on training in React, Firebase, and AI tools like GitHub Copilot and OpenAI Codex, without the formal QCTO certification. This flexible pathway ensures everyone can access world-class training tailored to their goals.

2. Entry Quiz & Interview

After applying, you'll complete a brief entry quiz and participate in a short interview to assess your logical reasoning and learning readiness. No coding knowledge is required—these steps help us understand your problem-solving approach and ensure we place you on the optimal learning pathway. Our goal is to create a supportive environment where you're neither bored nor overwhelmed, setting you up for success as you master full-stack development and AI-augmented workflows.

3. Flexible Payment Options

Secure your seat with an initial payment covering the first month of the bootcamp, with the remaining balance payable monthly before each module begins. For those enrolling in the QCTO-accredited program, an ETQA processing fee applies to cover certification costs. Pay this fee upfront to enjoy a 50% discount, reflecting TPC's commitment to affordable, learner-friendly education. Prefer to pay in full? Our upfront payment option offers up to a 20% discount on total tuition, maximising value as you invest in your future. Contact our admissions team at [contact email/phone] to explore payment plans tailored to your needs.

4. Orientation & Program Start

Two weeks before the bootcamp begins, you'll receive a comprehensive orientation pack detailing the program schedule, access to our learning platform, and setup instructions for tools like VS Code, GitHub, and AI assistants (e.g., GitHub Copilot). This pack ensures you're fully prepared to dive into hands-on workshops, mentored labs, and code-review cycles from day one. Our dedicated support team is available to assist with any setup or onboarding questions, ensuring a seamless transition into your learning journey.

TPC - Tech Performance Centre

"At TPC, we know - winning isn't for everyone. ***But for our students, it's everything.***"

Contact Us

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