144-Hour AI Product Engineering Blueprint

AI Scrum Master Edition

AI: the final frontier.
These are the voyages of the AI Scrum Master and Capt. GPT-5.
Their continuing mission: to explore bold new worlds of technology,
to seek out new tools and innovations,
to boldly build where no team has built before.

Like Capt. Kirk and Mr. Spock, learning and working side by side with Capt. GPT-5 is paramount — the pinnacle skill above all others.

TG144 144 Hour AI Product Engineering Blueprint

Table of Contents

Quick Take

- You don t need a 4 - 6 year CS degree to get hired for AI product work.
- Focus on code basics (Python + a bit of JS), Git, HTTP/APIs, SQL, deployment;
- LLM integration (prompts, function calling), RAG basics, and automation.
- Ship 2 3 live projects with clean repos and READMEs.

144-Hour Breakdown

- Total: ~144 hours over ~24 weeks (6 hrs/week).
- Goal: ship real apps, build a portfolio, speak the language of teams.

Core Skills (48 hrs)

- Dev fundamentals (12h): CLI, Git/GitHub (branch, PR, merge), reading docs, debugging.
- Python (12h): data types, files, requests, FastAPI basics, simple tests (pytest).
- JavaScript/Web (6h): HTTP, JSON, fetch, a simple Next.js page calling your API.
- SQL (10h): SELECT/JOIN/WHERE, indexes; Postgres basics; simple schema design.
- Deploy & Ops (8h): Vercel (frontend) + Render/Fly (FastAPI), env vars, logs.
- Checkpoint A (1 week): tiny FastAPI service + Next.js page, deployed.

5 / 12

Applied AI (36 hrs)

- LLM integration (12h): prompt patterns, function/tool calling, streaming, rate limits, safety.
- RAG basics (12h): chunking, embeddings, vector DB (Qdrant/Pinecone), retrieve cite.
- Eval & cost (6h): prompt A/B tests, latency, tokens, guardrails.
- TTS/ASR (6h): Whisper for speech-to-text; TTS for voice replies.
- Checkpoint B (2-3 weeks): `/ask` endpoint with RAG + citations; simple eval script.

6 / 12

Product & Integrations (36 hrs)

- Auth & users (6h): JWT or Clerk/Auth0; sessions; roles.
- Webhooks & automations (10h): Stripe test mode, GA4 events, simple Zapier/Make flow.
- Analytics & logging (6h): request logs, error alerts, funnel events.
- Media & avatars (8h): Heygen pipeline + CTA landing page; upload script generate.
- Security basics (6h): secrets handling, input validation, rate limiting, CORS.
- Checkpoint C (2-3 weeks): landing page lead capture AI reply (email/TTS) DB log.

7 / 12

Portfolio & Hiring (24 hrs)

- Project 1 EdTech RAG microservice (8h): `/ask-reading` over IELTS/HKDSE passages with citations.
- Project 2 Avatar Promo Funnel (8h): GPT script Heygen video CTA page GA4 email capture.
- Project 3 Chatbot in a channel (8h): Slack/WeChat/Telegram bot using your RAG service + memory.
- Hiring assets: crisp README, .env.example, endpoints, screenshots, live URLs, 60-sec Loom.

8 / 12

Weekly Cadence (24 weeks)

- Weeks 1 - 4: Core (Python, Git, HTTP, SQL) Checkpoint A.
- Weeks 5 - 8: LLM + RAG + eval Checkpoint B.
- Weeks 9 - 12: Auth, webhooks, analytics, avatar pipeline Checkpoint C.
- Weeks 13 - 20: Build Projects 1 3 (two weeks each).
- Weeks 21 - 24: Polish, docs, demos, applications, small freelance gigs.

9 / 12

What to Skip Now

Heavy calculus/proofs, advanced DS&A, training deep models from scratch, distributed training.

Add later if you pursue ML research roles.

10 / 12

What Work-Ready Looks Like

- You can wire an API from docs in hours.
- You can add RAG and return cited answers.
- You can deploy with environment variables, logging, and basic error handling.
- You have 3 clean repos + live demos.
- You can explain data, errors, cost, and security choices.
- You can build websites, web applications, avatars/clone voices/real time, chatbots,
- You can provide AI solutions for small to medium size businesses, schools, professional service providers
- You can start up your own AI Solutions Company.

11 / 12

Role Targets After 5 - 6 Months

AI Product Engineer / Full-stack (LLM).

Automation Engineer (Zapier/Make + scripts).

RAG Developer / Conversation Designer.

Data savvy Web Dev (SQL + GA4 + API work).

12 / 12

APPENDIX:

TG144 – Tommy & GPT 144-Hour Extension Modules

The following modules expand the TG144 Blueprint to align with evolving AI development practices:

1. CI/CD (Continuous Integration / Continuous Deployment)

- Simple explanation: test code when updated, deploy automatically if safe.
- Hands-on: GitHub Actions workflow.

2. Repo Cloning & Version Control

- Git clone, push, pull for safe upgrades and integration.
- Applied to real-world app development.

3. Console & Debugging

- Command-line basics, reading logs, debugging workflows.

4. Newest API Interactive Class

- Explore and learn new APIs in real time as a group for class exercise.
- Focus on co-exploration and rapid prototyping.

5. Auxiliary Workflows & Tech Stacks

- Adding workflows to projects (Docker, cloud services).
- Choosing the right stack for integration.

6. Journal 2.9.7 Website Embedding & Upgrading

- Hands-on practice with site embedding.
- Upgrading and troubleshooting layouts.

7. LLM (ChatGPT-5) Parsing

- Understanding how GPT-5 interprets input/output.
- Working effectively with large language models.

8. Customized Prompt Writing

- Writing effective prompts for AI systems.
- Class exercises in structured prompting.

Additional Modules

RESTful API Design & Integration

Understand the principles of REST (resources, endpoints, CRUD operations).

HTTP methods: GET, POST, PUT, DELETE, PATCH.

Building RESTful APIs with FastAPI and testing with Postman.

Hands-on: create a RESTful service with authentication and simple database integration.

Connect RESTful APIs to frontend (Next.js) for full-stack integration.

LangChain Workflows

Introduction to LangChain: chains, agents, tools, and retrievers.

When to use LangChain vs direct API calls.

Hands-on: build a Retrieval-Augmented Generation (RAG) chain with LangChain.

Extend with tool calling (e.g., search, calculator, database).

Integrating LangChain with external APIs and vector databases (Qdrant/Pinecone).

All TG144 modules are designed to build on the 144-Hour AI Product Engineering Blueprint, maintaining consistent learning pace and formatting.

About Blueprint Author

Tommy Tam is the Director of TAEASLA, an academic English and AI teaching group operating both online and offline. Though not holding a doctorate in education, his career reflects more than two decades of pioneering teaching practice and program leadership across Hong Kong and Mainland China.

In 2004, Tommy was among the first in Hong Kong to launch an IELTS preparation course with a bold guarantee of achieving a band 6.5 or a full refund—an innovation that established him as a trusted authority in test preparation. A decade later, in 2014, he expanded into teaching the HKDSE alongside IELTS, shaping students' academic futures through targeted English training.

His leadership extends beyond classrooms. Tommy has managed three overseas university programs in Hong Kong—two as IELTS Head Master and one as Program Manager/Head Master. In 2016, he spearheaded Beijing Foreign Studies University's IELTS program in Shenzhen, China, further cementing his role as a bridge between international standards and local needs.

Tommy's most transformative chapter began on February 17th, 2025, when he first used AI to teach his Academic English classes. After two months of intense daily experimentation (8–10 hours a day), he successfully prompted AI to deliver a fully AI-led Academic English class on April 20th, 2025, in Shenzhen, China—a milestone that positioned him at the forefront of AI-powered education.

Between **February and August 2025**, Tommy rapidly evolved from educator to AI developer, building more than 24 education web apps, creating 3 real-time avatar AI chatbots, and designing 1 real-time AI chatbot. Entirely self-taught through GPT-4 and GPT-5, he mastered the usage of RESTful APIs, LangChain, Replit, Git, Vercel, and multiple coding frameworks and integration methods. This hands-on engineering journey underscores his conviction that educators must not only use AI but also learn to shape and direct it for the benefit of students.

Because Tommy wants to demonstrate to the world the empowerment abilities of AI—beyond searching for restaurants or answering homework questions—he truncated a four-year Computer Science degree program into a 144-hour intensive course, naming it TG144 (Tommy and GPT). Upon completion, students gain the capability to enter the workforce as Scrum Master 2.0 (a term coined by Tommy), equipped with both AI literacy and agile project leadership skills.

With a Master's in Christian Ministries as his formal academic foundation, Tommy brings not only technical and pedagogical expertise but also a values-driven approach to education. His career reflects a consistent theme: challenging the status quo, pioneering new methods, and ensuring that students are prepared for the evolving demands of a global, AI-driven world.