

Semester_Plan

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Semester Plan — Full Curriculum Integration

A clean, print-friendly overview of the four-semester roadmap. This complements the detailed QuickStart Reference Guide.

Semester 1 — Foundations

- **Languages & Web:** Python fundamentals; HTML & CSS basics
- **Quality:** Prettier (frontend), Flake8 + pytest (backend), EditorConfig
- **Accessibility:** Landmarks, alt text, keyboard traps
- **Data:** SQL basics (Supabase: Auth + Postgres)
- **Platform:** Render (FastAPI service + Static site)
- **Collaboration:** GitHub (Issues/PRs/Actions), Notion (docs), Slack (alerts)
- **Automations:** Node-RED (Notion → Supabase sync, CI alerts)
- **Observability/Security:** Sentry, Dependabot
- **Milestone:** Deployed Avatar-AI-Educator MVP with lessons, quizzes, Q&A avatar, progress tracking

Semester 2 — Interactivity → Modern SPA

- **Frontend:** React + TypeScript (keep HTMX “lite” path)
- **State/Data:** React Query (or Redux), forms, validation
- **APIs:** REST **and** GraphQL facades to same data
- **Testing:** Jest + Testing Library (unit), Playwright (E2E)
- **Components:** Design tokens, a11y patterns, small component library
- **Milestone:** SPA front-end for the tutor with live updates, optimistic UI, and protected routes

Semester 3 — Reimagination + AI

- **LLM Engineering:** Prompt patterns, retrieval (RAG), agents (LangChain)

- **Personalization:** Background jobs/queues, analytics-driven difficulty
 - **Platform:** Dockerize services; container CI
 - **Security:** Rate limits, input validation, secrets & keys hygiene
 - **Milestone:** AI-augmented release of the app with voice, multilingual support, and adaptive learning
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Semester 4 — Growth & Monetization

- **Monetize:** Stripe subscriptions, targeted AdSense (as appropriate)
- **Product Analytics:** Event taxonomy, funnels, A/B tests
- **Ops:** SLOs, dashboards, incident runbooks, SEO checklist
- **Go-To-Market:** Positioning, content strategy, social automation
- **Milestone:** Public launch; marketing site; conversion tracking; first users/revenue