

IASE

Global Curriculum Standard

International Institute of AI Software Engineering

6 Faculties · 32 Schools · 38 Flagship Programs · 320+ Courses

This document publishes the full IASE curriculum: every faculty, every school, every flagship program, with learning outcomes and prerequisites — the global standard reference edition.

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Faculty of AI Software Engineering

Production-grade systems: enterprise platforms, SaaS, mobile, desktop, APIs and cloud infrastructure.

School of Enterprise Software Engineering

Learning outcomes

- Design distributed systems that handle 10M+ daily users
- Model complex enterprise domains with DDD and event storming
- Ship software that meets SOC 2, ISO 27001 and HIPAA controls
- Lead architectural reviews and technical due diligence

Courses

- Enterprise Architecture Foundations
- Domain-Driven Design & Event Storming
- Distributed Systems & Consistency Models
- Microservices, Modular Monoliths & Service Meshes
- Enterprise Data Modeling
- Message Queues & Event-Driven Systems (Kafka, NATS)
- Observability, SLOs & Incident Response
- Enterprise Security & Compliance (SOC 2, ISO 27001)
- Cost Engineering & FinOps
- Capstone: Enterprise Platform in Production

School of SaaS Engineering

Learning outcomes

- Architect multi-tenant systems with row-level security
- Implement subscription billing, trials, coupons and dunning
- Design and instrument activation, retention and expansion loops
- Ship weekly to production behind feature flags

Courses

- Multi-Tenant Architecture Patterns
- Auth, Roles, RBAC & Organizations
- Subscription Billing with Stripe & Paddle
- Usage Metering & Consumption-Based Pricing
- Product Analytics & Growth Instrumentation
- Onboarding, Activation & Retention Loops

- Enterprise Admin Consoles
- Compliance for SaaS (GDPR, DPA, SCC)
- Support, SLAs & Incident Communications
- Capstone: Ship a Paying SaaS

School of Mobile Engineering

Learning outcomes

- Ship apps to the App Store and Play Store
- Design offline-first, sync-aware mobile architectures
- Integrate on-device and cloud AI models
- Instrument mobile-native analytics, crash reporting and A/B tests

Courses

- Mobile UX Foundations & Human Interface Guidelines
- React Native + Expo (Deep Dive)
- Flutter Fundamentals
- Native Modules & Platform APIs
- On-Device AI (CoreML, MLKit, ONNX)
- Offline-First & Sync Architectures
- Push Notifications & Background Tasks
- App Store & Play Store Release Engineering
- Mobile Analytics & Experimentation
- Capstone: Ship a Mobile App to Both Stores

School of Desktop Engineering

Learning outcomes

- Ship signed installers for macOS, Windows and Linux
- Design keyboard-first, latency-sensitive UIs
- Integrate local models and system APIs
- Build auto-update and crash-reporting pipelines

Courses

- Desktop UX Foundations
- Tauri (Rust + Web) Deep Dive
- Electron & Cross-Platform Packaging
- Native macOS (Swift/SwiftUI) & Windows (WinUI)
- Local AI Runtimes (llama.cpp, Ollama, MLC)
- File System, Shell & OS Integrations

- Code Signing, Notarization & Auto-Update
- Performance & Latency Engineering
- Capstone: Ship a Signed Desktop App

School of API Engineering

Learning outcomes

- Design REST, GraphQL and RPC APIs that scale
- Ship SDKs in 3+ languages with typed clients
- Monetize APIs with metering, rate limits and tiers
- Author documentation that developers love

Courses

- REST, GraphQL & tRPC/gRPC Compared
- API Design Principles & Versioning
- Auth, Keys, OAuth & JWTs
- Rate Limiting, Quotas & Fair Use
- SDK Design & Codegen Pipelines
- Developer Portals & Documentation
- API Monetization & Metering
- Webhooks, Streaming & Long-Running Jobs
- Capstone: Ship a Paid Public API

School of Cloud & DevOps Engineering

Learning outcomes

- Design multi-region, multi-cloud architectures
- Automate CI/CD, IaC and progressive delivery
- Instrument SLIs/SLOs and lead incidents
- Drive cloud cost down 30–70%

Courses

- Cloud Foundations (AWS · GCP · Azure)
- Infrastructure as Code (Terraform · Pulumi)
- Kubernetes in Production
- Progressive Delivery & GitOps
- Observability (OpenTelemetry, Grafana, Datadog)
- Incident Response & Postmortems
- Security in the Cloud
- FinOps & Cloud Cost Engineering

- Edge Compute (Cloudflare, Fly.io)
- Capstone: Ship a Multi-Region Platform

Faculty of Artificial Intelligence

The intelligence layer of modern software: models, agents, LLM systems and generative pipelines.

School of AI Engineering

Learning outcomes

- Design retrieval, memory and tool-use architectures
- Build robust evals and regression suites for AI features
- Guardrail LLM systems for safety and cost
- Ship AI features that survive real user traffic

Courses

- The Modern AI Stack
- Prompting & Structured Output
- Retrieval-Augmented Generation (RAG)
- Vector Databases & Hybrid Search
- Tool Use, Function Calling & Agents
- Long-Term Memory Architectures
- Evals, Golden Sets & LLM-as-Judge
- Guardrails, Safety & Content Policy
- Cost, Latency & Model Routing
- Capstone: Ship an AI Feature to Production

School of AI Agents & Automation

Learning outcomes

- Design agents with planning, memory and tools
- Build durable, resumable agent runtimes
- Deploy human-in-the-loop review workflows
- Measure agent success with task-completion metrics

Courses

- Agent Architectures (ReAct, Plan-and-Solve, Reflexion)
- Multi-Agent Systems & Orchestration
- Durable Execution & State Machines
- Browser, Code and OS Agents
- RPA + AI (Legacy System Automation)
- Human-in-the-Loop Design

- Evals for Long-Running Agents
- Agent Ops & Cost Control
- Capstone: Ship an Autonomous Agent to Production

School of Machine Learning

Learning outcomes

- Frame business problems as ML problems
- Train, evaluate and deploy models end-to-end
- Detect drift, retrain and version models
- Communicate uncertainty to non-technical stakeholders

Courses

- Math for ML (Linear Algebra, Probability, Optimization)
- Classical ML (Regression, Trees, Ensembles)
- Deep Learning Foundations
- Feature Engineering & Data Quality
- Experiment Tracking & Reproducibility
- MLOps & Model Deployment
- Drift Detection & Retraining Loops
- Responsible ML & Fairness
- Capstone: Ship an ML System to Production

School of Generative AI

Learning outcomes

- Build text-to-image, video and audio pipelines
- Fine-tune and adapt open models
- Implement safety, watermarking and provenance
- Ship generative features to consumer scale

Courses

- Generative Models Overview
- Diffusion Models Deep Dive
- Fine-Tuning & LoRA/QLoRA
- Image, Video & Audio Pipelines
- 3D & Neural Rendering
- Prompt & Reference Engineering
- Content Safety & Provenance (C2PA)
- Rights, Licensing & Monetization

- Capstone: Ship a Generative Product

School of LLM Engineering

Learning outcomes

- Serve open models at production latency and cost
- Fine-tune and align models to specific domains
- Distill and quantize for edge deployment
- Build in-house model gateways and routers

Courses

- Transformer Architecture
- Tokenization, Context & Attention
- Inference Servers (vLLM, TGI, TensorRT-LLM)
- Quantization & Distillation
- SFT, DPO & RLHF
- Evals for LLMs
- Model Routing & Gateways
- Self-Hosting Open Models
- Capstone: Ship a Custom LLM Stack

School of Prompt Engineering

Learning outcomes

- Design prompts that are robust across model versions
- Version, test and deploy prompts like code
- Build prompt libraries for teams
- Measure prompt quality with formal evals

Courses

- Anatomy of a Prompt
- Structured Output & Schemas
- Few-Shot, CoT, ToT & Advanced Techniques
- Prompt Injection & Defense
- Prompt Versioning & CI
- Prompt Evals & Regression Testing
- Multi-Model Prompt Portability
- Prompt Libraries for Teams
- Capstone: Build a Production Prompt System

Faculty of Interactive Computing

Immersive, spatial and gameful software: XR, digital twins, real-time 3D and AI games.

School of AI Game Development

Learning outcomes

- Ship a complete playable game
- Integrate generative pipelines into game production
- Design AI-driven NPCs and systems
- Publish to Steam, itch.io or mobile stores

Courses

- Game Design Fundamentals
- Godot Deep Dive
- Unity for AI Games
- Unreal Engine Basics
- Procedural Content Generation
- AI NPCs & Behavior Trees
- Multiplayer & Netcode
- Publishing & Live Ops
- Capstone: Ship a Playable Game

School of XR Engineering (VR / AR / MR)

Learning outcomes

- Ship XR apps to Quest, Vision Pro and mobile AR
- Design spatial UI that respects human comfort
- Integrate hand, eye and body tracking
- Deploy XR in enterprise training contexts

Courses

- XR Hardware & Platforms Overview
- Unity XR Toolkit
- Unreal XR & OpenXR
- visionOS & Apple Spatial
- WebXR
- Spatial UI & Interaction Design
- Locomotion, Comfort & Accessibility

- Enterprise XR Deployments
- Capstone: Ship an XR Experience

School of Spatial Computing

Learning outcomes

- Build apps with persistent spatial anchors
- Integrate SLAM, depth and scene understanding
- Design shared spatial multi-user experiences
- Ship on Vision Pro and Quest

Courses

- Spatial Computing Foundations
- SLAM & Scene Understanding
- Spatial Anchors & Persistence
- ARKit, ARCore & MRTK
- Multi-User Spatial Sessions
- 3D Audio & Haptics
- Spatial Data & Analytics
- Capstone: Ship a Spatial Application

School of Digital Twins

Learning outcomes

- Design and operate live digital twin systems
- Integrate IoT telemetry at scale
- Run simulations and what-if analyses
- Visualize twins in 3D and XR

Courses

- Digital Twin Foundations
- IoT & Telemetry Ingestion
- Simulation & Physics Engines
- 3D Reconstruction & Photogrammetry
- Real-Time Visualization
- Predictive Maintenance
- City-Scale Twins
- Capstone: Ship a Digital Twin

School of 3D Software Engineering

Learning outcomes

- Ship performant 3D on the web and native
- Author shaders and rendering pipelines
- Integrate physics, animation and IK
- Optimize for mobile GPUs

Courses

- 3D Math & Linear Algebra
- three.js & React Three Fiber
- WebGPU Foundations
- Shader Programming (GLSL/WGSL)
- Physics & Animation
- Asset Pipelines (glTF, USD)
- Performance & GPU Profiling
- Capstone: Ship a 3D Product

Faculty of Product & Innovation

Turning technology into products, companies and category-defining teams.

School of AI Product Engineering

Learning outcomes

- Write PRDs that ship
- Run lightweight user research
- Instrument products for outcome metrics
- Lead cross-functional product squads

Courses

- Product Thinking for Engineers
- Writing PRDs & Specs
- Lightweight User Research
- Prototyping with AI Tools
- Product Analytics
- Experimentation & A/B Testing
- Roadmapping & Prioritization
- Capstone: Own a Product Line

School of Product Management

Learning outcomes

- Lead AI-native product discovery
- Set outcome-based roadmaps
- Partner deeply with engineering and design
- Navigate AI-specific risks

Courses

- Product Discovery in the AI Era
- Opportunity Solution Trees
- AI Product Strategy
- Roadmapping for Uncertainty
- Metrics for AI Products
- Managing AI Risks (Hallucination, Bias, Cost)
- Leading Cross-Functional Teams
- Capstone: Ship an AI Product Line

School of UX Engineering

Learning outcomes

- Build production design systems
- Ship interfaces that meet WCAG 2.2 AA
- Design and implement rich motion
- Prototype at production quality

Courses

- Design Systems in Code
- Accessibility Engineering
- Motion & Interaction Design
- Typography & Layout Systems
- Prototyping with Framer & React
- Design Tokens & Theming
- Component API Design
- Capstone: Ship a Design System

School of Startup Engineering

Learning outcomes

- Ship a live product with paying users
- Raise pre-seed capital or reach ramen profitability
- Hire the first 3 people
- Set up the operating stack of a modern startup

Courses

- The Founding-Engineer Playbook
- Company Formation & Cap Tables
- Fundraising 101 (Angel, Pre-Seed, Seed)
- Hiring the First 5
- GTM for Engineers
- Startup Legal & Compliance
- Operating a Remote Company
- Capstone: Launch a Startup

School of Venture Building

Learning outcomes

- Run an idea-to-launch pipeline
- Validate ventures in weeks, not years
- Build repeatable playbooks
- Scale portfolios of ventures

Courses

- Venture Building as a Discipline
- Systematic Ideation
- Rapid Validation Sprints
- Studio Operating Models
- Shared Services & Platforms
- Portfolio Strategy
- Exit Paths (M&A;, Spin-out, IPO)
- Capstone: Launch a Venture Inside a Studio

Faculty of Enterprise Technology

Regulated, mission-critical software for the industries that run the world.

School of Cybersecurity

Learning outcomes

- Red-team AI systems responsibly
- Defend LLM apps against injection and data leaks
- Lead security reviews for AI features
- Implement zero-trust cloud architectures

Courses

- Security Foundations
- Cloud Security (AWS/GCP/Azure)
- Application Security & OWASP
- LLM Red-Teaming & OWASP LLM Top 10
- Prompt Injection & Defense
- Supply Chain Security
- Detection & Response
- Compliance (SOC 2, ISO, HIPAA, PCI)
- Capstone: Full Security Program

School of FinTech Engineering

Learning outcomes

- Design ledgers and money-movement systems
- Integrate KYC, AML and sanctions screening
- Ship PCI-compliant payment flows
- Partner with banks and BaaS providers

Courses

- FinTech Landscape & Regulation
- Double-Entry Ledgers
- Payments & Card Networks
- KYC / AML / Sanctions
- Banking-as-a-Service Integrations
- Lending & Underwriting
- Crypto & Stablecoin Rails

- PCI DSS & SOC 2 for FinTech
- Capstone: Ship a FinTech Product

School of HealthTech Engineering

Learning outcomes

- Design HIPAA-compliant architectures
- Integrate with EHRs via FHIR and HL7
- Ship AI-assisted clinical tools responsibly
- Navigate FDA SaMD guidance

Courses

- Healthcare Systems Overview
- HIPAA & Data Protection
- FHIR & HL7 Integrations
- EHR Integrations (Epic, Cerner)
- Clinical Workflows
- AI in Diagnostics & Triage
- SaMD & Regulatory Pathways
- Telehealth Architectures
- Capstone: Ship a HealthTech Product

School of EduTech Engineering

Learning outcomes

- Design personalized learning systems
- Ship AI tutors and graders responsibly
- Build credential and assessment platforms
- Support learners at scale

Courses

- Learning Science Foundations
- LMS Architectures
- AI Tutors & Socratic Systems
- Assessment & Grading Automation
- Credentials & Open Badges
- Content Authoring Pipelines
- Accessibility in Education
- Capstone: Ship an EduTech Product

School of GovTech Engineering

Learning outcomes

- Design digital public infrastructure
- Integrate national ID and payments rails
- Ship accessible, multi-language services
- Navigate procurement and compliance

Courses

- Digital Public Infrastructure
- Identity Systems
- Benefits & Case Management
- Open Data & APIs
- Accessibility & Plain Language
- Government Cloud & Compliance
- Public Procurement
- Capstone: Ship a GovTech Service

School of PropTech Engineering

Learning outcomes

- Ship real estate marketplaces
- Integrate MLS and listing feeds
- Build smart-building integrations
- Model complex real estate transactions

Courses

- Real Estate Systems Overview
- MLS & Listing Data
- Transaction & Escrow Workflows
- Property Management Systems
- Smart Building IoT
- Construction Tech
- Geospatial Foundations
- Capstone: Ship a PropTech Product

School of HospitalityTech Engineering

Learning outcomes

- Ship booking and reservation systems

- Integrate PMS, POS and channel managers
- Design guest-experience journeys
- Handle payments and taxes globally

Courses

- Hospitality Systems Overview
- Booking Engines
- PMS & POS Integrations
- Channel Managers
- Guest Experience Design
- Loyalty & CRM
- Global Payments & Taxes
- Capstone: Ship a Hospitality Product

School of LegalTech Engineering

Learning outcomes

- Ship document automation and review tools
- Integrate AI into legal workflows responsibly
- Design case and matter management systems
- Understand privilege, ethics and confidentiality

Courses

- Legal Systems Overview
- Contract Analysis & Automation
- Document Review & eDiscovery
- Case & Matter Management
- AI in Legal Research
- Privilege, Ethics & Confidentiality
- Access to Justice Products
- Capstone: Ship a LegalTech Product

Faculty of Business & Growth

The commercial engine — AI-native marketing, sales engineering, customer success and revenue ops.

School of AI Marketing

Learning outcomes

- Run full-funnel growth programs
- Ship SEO and content at scale with AI
- Design paid acquisition experiments
- Instrument lifecycle and retention

Courses

- Modern Growth Foundations
- SEO & Programmatic Content
- Paid Acquisition (Meta, Google, TikTok)
- Lifecycle & Email Marketing
- Brand & Positioning
- Growth Experimentation
- Marketing Analytics & Attribution
- Capstone: Run a Growth Program

School of Sales Engineering

Learning outcomes

- Run technical POCs end-to-end
- Architect solutions for enterprise buyers
- Partner with AEs to close 6- and 7-figure deals
- Build reusable sales engineering assets

Courses

- Sales Engineering Foundations
- Discovery & Solutioning
- Building POCs Fast
- Enterprise Buying Motions
- Security Reviews & MSAs
- Demo Craft
- Partner & Channel Motion
- Capstone: Close an Enterprise POC

Flagship Programs

38 programs across all six faculties. Each program lists its ECTS credits, learning outcomes, and prerequisites.

P01 • Foundational

AI Product Builder

12 weeks · 180 study hours · 12 ECTS · Cohort · \$3,900

A guided sprint from a raw idea to a live, paying-ready AI product. You learn the craft of shipping — scoping, prototyping, engineering, launching and measuring — using the same tools professional AI builders rely on.

Learning outcomes

- Take a problem from insight to a live production URL
- Design AI-native user experiences with clear success metrics
- Ship weekly using Lovable, Cursor and Claude with confidence
- Instrument analytics, iterate on real users and defend product decisions

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English
- 6–10 hrs / week study time

Capstone

A live AI product with real users, live payments enabled and a public launch page.

P02 • Advanced

Enterprise AI Software Engineering

24 weeks · 480 study hours · 30 ECTS · Studio · \$7,800

A 24-week studio that trains engineers to design and operate mission-critical AI-augmented systems for banks, airlines, hospitals and governments. Emphasis on architecture, reliability, security and cost.

Learning outcomes

- Design distributed AI-augmented systems handling 10M+ daily users
- Ship code that clears SOC 2, ISO 27001 and HIPAA controls
- Lead architectural reviews and technical due diligence
- Operate systems with meaningful SLOs, budgets and incident practice

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)

- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A reference enterprise platform deployed to a real cloud with signed evidence of SLOs, security and cost controls.

P03 · Advanced

Cloud Engineering with AI

16 weeks · 260 study hours · 18 ECTS · Cohort · \$6,400

Design, deploy and operate resilient cloud infrastructure across AWS, GCP and Azure using AI copilots as first-class collaborators. Ends with a live multi-region deployment.

Learning outcomes

- Ship infrastructure-as-code across three major clouds
- Design multi-region, cost-optimised architectures
- Build AI-augmented pipelines for deployment, observability and remediation
- Operate cloud budgets with meaningful FinOps controls

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A live, multi-region reference cloud with cost, observability and AI-remediation controls.

P04 · Advanced

Enterprise SaaS Engineering

20 weeks · 380 study hours · 24 ECTS · Studio · \$7,200

Design, build and grow multi-tenant SaaS end-to-end. Every student graduates with a live SaaS ready to invoice paying customers.

Learning outcomes

- Architect multi-tenant systems with proper isolation
- Ship subscription billing, trials, coupons and dunning
- Instrument activation, retention and expansion loops
- Deploy weekly to production behind feature flags

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)

- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A live paying SaaS with billing, admin console, analytics and a public launch.

P05 · Advanced

AI Agent Engineering

16 weeks · 280 study hours · 18 ECTS · Cohort · \$6,600

A rigorous studio in agent engineering — planning, tool-use, memory, evals and safety — for teams putting agents to work on real business processes.

Learning outcomes

- Design multi-step agents with clear planning and tool boundaries
- Build robust evals, guardrails and human-in-the-loop patterns
- Deploy agents that operate safely in production
- Measure and improve agent quality with real telemetry

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

An agent shipped into a real workflow with evals, dashboards and rollback controls.

P06 · Foundational

AI Mobile Engineering

14 weeks · 220 study hours · 15 ECTS · Cohort · \$4,900

Build native-quality mobile apps with AI at the core, on both iOS and Android, published to real app stores.

Learning outcomes

- Ship iOS and Android apps from a single codebase
- Design mobile-native AI experiences
- Handle offline, sync and on-device inference
- Navigate app store submission end-to-end

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English

- 6–10 hrs / week study time

Capstone

A cross-platform AI app live in the App Store and Play Store.

P07 · Foundational

Desktop Software Engineering

12 weeks · 180 study hours · 12 ECTS · Cohort · \$4,200

Build the next generation of AI-native desktop tools — for creators, engineers and operators — using Tauri, Electron and native APIs.

Learning outcomes

- Ship cross-platform desktop apps on macOS, Windows and Linux
- Design AI-augmented desktop workflows
- Package, sign and distribute apps to users
- Integrate deeply with OS-level APIs

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English
- 6–10 hrs / week study time

Capstone

A signed, distributable desktop tool used by real users.

P08 · Foundational

API Engineering

10 weeks · 150 study hours · 10 ECTS · Cohort · \$3,900

A focused sprint on APIs as first-class products, covering design, DX, security, versioning and monetisation.

Learning outcomes

- Design REST and typed RPC APIs that developers love
- Ship auth, rate limiting and quotas that scale
- Version, deprecate and evolve APIs safely
- Monetise an API with metering and billing

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English

- 6–10 hrs / week study time

Capstone

A public API with docs, SDKs, billing and a live sandbox.

P09 · Advanced

DevOps Engineering with AI

12 weeks · 200 study hours · 14 ECTS · Cohort · \$5,400

Modern DevOps rebuilt around AI copilots — deployment, observability, incident response and reliability all become collaborative disciplines.

Learning outcomes

- Ship CI/CD pipelines augmented by AI review and remediation
- Instrument production systems with meaningful SLOs
- Run incident response with clear rituals and postmortems
- Build internal platforms that other engineers actually use

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A production platform-in-a-box with pipelines, observability and AI-augmented runbooks.

P10 · Advanced

AI Infrastructure Engineering

18 weeks · 340 study hours · 22 ECTS · Studio · \$7,000

The plumbing behind AI products — inference, retrieval, evals and cost control — designed and operated at scale.

Learning outcomes

- Design cost-aware inference and retrieval systems
- Build eval pipelines that catch regressions before users do
- Operate AI systems with meaningful reliability and cost budgets
- Instrument end-to-end AI observability

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling

- 10–15 hrs / week study time

Capstone

A production AI serving platform with evals, cost control and rollback.

P11 · Foundational

AI Automation Engineering

12 weeks · 170 study hours · 12 ECTS · Cohort · \$3,900

Turn painful manual processes into resilient AI-powered automations that run 24/7 with clear guardrails and observability.

Learning outcomes

- Map processes and identify high-ROI automation targets
- Build production automations with n8n, Make and code
- Design guardrails, retries and observability for automations
- Handoff automations to non-technical operators

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English
- 6–10 hrs / week study time

Capstone

A production automation running a real business process end-to-end.

P12 · Executive

AI Startup Accelerator

20 weeks · 400 study hours · 25 ECTS · Residency · \$12,000

A 20-week residency for founders building AI-native companies — from problem validation through fundraising, ending in Demo Day.

Learning outcomes

- Validate a real problem with real customers
- Ship an MVP with early revenue or strong traction
- Build a fundable narrative, deck and data room
- Pitch investors and close a first cheque

Prerequisites

- Founder, senior engineer or technical leader with an active mandate
- Working product, prototype or company brief to develop in cohort
- Ability to travel to at least one residency window

- 15–20 hrs / week study time

Capstone

Demo Day pitch to a curated group of investors and partners.

P13 · Foundational

AI Product Management

12 weeks · 180 study hours · 12 ECTS · Cohort · \$3,900

The craft of AI product management — discovery, strategy, roadmaps, evals and shipping cadence — for the leaders of the next decade of software.

Learning outcomes

- Run modern discovery and prioritisation
- Set AI-native product strategy and evals
- Lead cross-functional AI teams with clear cadence
- Ship, measure and iterate on real products

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English
- 6–10 hrs / week study time

Capstone

A real AI product roadmap, evals framework and launch retro.

P14 · Advanced

AI Game Development

20 weeks · 380 study hours · 24 ECTS · Studio · \$6,900

A studio-based deep dive into AI game craft — procedural content, believable NPCs and AI-assisted production pipelines across all three major engines.

Learning outcomes

- Ship a playable AI-driven game across two engines
- Design NPCs with LLM-driven behaviour
- Implement procedural content pipelines
- Publish to Steam, itch.io or console storefronts

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling

- 10–15 hrs / week study time

Capstone

A published AI game with a real player community.

P15 · Advanced

AI Virtual Reality Development

16 weeks · 280 study hours · 18 ECTS · Cohort · \$6,200

Design and build immersive VR experiences with AI-driven interaction, agents and environments, for Quest, Vision Pro and PC-tethered rigs.

Learning outcomes

- Ship a polished VR experience on modern headsets
- Design comfortable AI-driven interaction
- Optimise performance for standalone VR
- Publish to Meta Horizon or SideQuest

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A polished VR experience shipped to a real headset store.

P16 · Advanced

AI Augmented Reality Development

16 weeks · 260 study hours · 18 ECTS · Cohort · \$6,200

Craft AR experiences for iOS, Android and headsets, using spatial AI to anchor intelligent content into the real world.

Learning outcomes

- Ship AR experiences on iOS and Android
- Design spatial AI-augmented interactions
- Build enterprise AR for training and field ops
- Publish to App Store and Play Store

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling

- 10–15 hrs / week study time

Capstone

A published AR experience with a working spatial AI feature.

P17 · Advanced

AI Mixed Reality Development

18 weeks · 300 study hours · 20 ECTS · Cohort · \$6,600

Design and build MR software that fuses AI, spatial computing and passthrough for Apple Vision Pro, Quest 3 and beyond.

Learning outcomes

- Ship MR apps on Apple Vision Pro and Quest 3
- Design AI-augmented mixed reality interactions
- Fuse passthrough, hand tracking and spatial anchors
- Publish to Vision Pro and Horizon storefronts

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A polished MR app live on Vision Pro or Quest 3.

P18 · Advanced

Spatial Computing Engineering

16 weeks · 260 study hours · 18 ECTS · Studio · \$6,200

The engineering of interfaces that model the physical world — for robotics, XR, digital twins and next-generation computing.

Learning outcomes

- Model 3D space with modern spatial engines
- Build interfaces that respond to motion and gesture
- Integrate spatial AI for scene understanding
- Ship spatial software into a real vertical

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling

- 10–15 hrs / week study time

Capstone

A spatial application deployed into a real vertical use-case.

P19 · Advanced

Digital Twin Engineering

18 weeks · 300 study hours · 20 ECTS · Studio · \$6,800

Design and operate digital twins — live 3D replicas of factories, buildings and cities — instrumented with IoT and augmented with AI.

Learning outcomes

- Model physical assets as live 3D digital twins
- Stream IoT and telemetry into twin representations
- Layer AI on top for simulation and prediction
- Ship a twin used for real operational decisions

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A live twin deployed for a real industrial or civic use-case.

P20 · Advanced

AI Cybersecurity

16 weeks · 280 study hours · 18 ECTS · Cohort · \$6,600

Practical, adversarial-minded security engineering for AI-augmented systems, from threat modelling through incident response.

Learning outcomes

- Threat-model AI-augmented systems end-to-end
- Run offensive exercises against LLM and agent systems
- Implement defensive controls at code, infra and org levels
- Lead a security incident with a clean postmortem

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling

- 10–15 hrs / week study time

Capstone

A full offensive-and-defensive exercise on a target AI system with a signed remediation plan.

P21 · Foundational

AI Data Engineering

14 weeks · 230 study hours · 15 ECTS · Cohort · \$4,600

Modern data engineering for AI teams — pipelines, warehouses, vector stores and evals — with a strong emphasis on quality and cost.

Learning outcomes

- Design and operate modern data pipelines
- Build warehouses and vector stores that support AI workloads
- Instrument data quality and lineage
- Ship data products with clear contracts

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English
- 6–10 hrs / week study time

Capstone

A data platform powering a real AI application with contracts, quality and cost controls.

P22 · Advanced

Cloud & DevOps with AI

14 weeks · 230 study hours · 15 ECTS · Cohort · \$5,200

A hands-on cloud and DevOps program that teaches platform engineering with AI copilots — from infrastructure-as-code and CI pipelines through observability, on-call and cost.

Learning outcomes

- Design multi-region cloud architectures on AWS or GCP
- Author production Terraform, Kubernetes and Helm with AI copilots
- Ship progressive-delivery pipelines with automatic rollback
- Operate an on-call rotation with clean postmortems

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling

- 10–15 hrs / week study time

Capstone

A production-grade platform blueprint with IaC, CI/CD, observability and a live on-call rehearsal.

P23 · Advanced

AI Agents & Automation Engineering

14 weeks · 230 study hours · 15 ECTS · Cohort · \$5,400

Design, ship and operate multi-agent systems for enterprise workflows — with tool-use, memory, evals, guardrails and observability from day one.

Learning outcomes

- Design tool-using agents with clear task boundaries
- Instrument traces, evals and cost per task
- Compose multi-agent workflows with human-in-the-loop
- Deploy agents into a real business process with SLAs

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A production agent embedded in a real workflow with traces, evals and a signed operations runbook.

P24 · Foundational

Generative AI Engineering

12 weeks · 200 study hours · 12 ECTS · Cohort · \$4,400

A practical program for engineers building on top of frontier generative models across modalities — text, image, audio, video — with strong evaluation and safety practice.

Learning outcomes

- Compose multimodal generative pipelines
- Fine-tune and adapt open models for domain tasks
- Design evaluation harnesses for creative output
- Ship a generative product with content safety controls

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English

- 6–10 hrs / week study time

Capstone

A shipped multimodal generative product with an eval suite and a public safety policy.

P25 · Advanced

LLM Engineering

14 weeks · 240 study hours · 15 ECTS · Studio · \$5,800

A rigorous studio on the full LLM engineering stack: retrieval, fine-tuning, evaluation, inference optimisation, and safe serving at scale.

Learning outcomes

- Design and evaluate retrieval-augmented systems
- Fine-tune and distill open models for production
- Build reproducible eval harnesses with cost accounting
- Serve LLMs with SLOs and safety controls

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A domain LLM system with retrieval, fine-tuning, evals and a hardened serving stack.

P26 · Foundational

Prompt Engineering Mastery

8 weeks · 120 study hours · 8 ECTS · Cohort · \$2,800

An eight-week intensive that treats prompting as a disciplined engineering practice — with structured patterns, versioning, evaluations and reproducibility.

Learning outcomes

- Design structured, versioned prompt systems
- Build eval harnesses that catch regressions
- Optimise cost and latency across model tiers
- Ship prompt-driven features into production products

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English

- 6–10 hrs / week study time

Capstone

A production prompt system with versioned prompts, an eval suite and a cost/latency report.

P27 · Advanced

3D Software Engineering

14 weeks · 240 study hours · 15 ECTS · Studio · \$5,600

A studio that builds fluency in real-time 3D software — from math foundations and shaders to interactive scenes deployed on the web, desktop and devices.

Learning outcomes

- Author interactive 3D scenes with confident math
- Write and debug shaders for real-time effects
- Ship performant WebGPU / Three.js experiences
- Integrate 3D UX into product surfaces

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

An interactive 3D application shipped to the web with a live performance report.

P28 · Foundational

UX Engineering

12 weeks · 180 study hours · 12 ECTS · Cohort · \$3,900

A hands-on program on the engineering side of great UX — design systems, motion, accessibility and measurable product polish.

Learning outcomes

- Own and evolve a production design system
- Ship accessible interfaces that pass WCAG 2.2 AA
- Design motion that clarifies rather than decorates
- Instrument and improve product polish with metrics

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English

- 6–10 hrs / week study time

Capstone

A refactored production surface with a public accessibility and motion audit.

P29 · Advanced

Startup Engineering

16 weeks · 300 study hours · 20 ECTS · Studio · \$6,400

A studio for early founders and founding engineers: how to make technical decisions that scale from zero to Series A without accruing fatal debt.

Learning outcomes

- Sequence architecture decisions against fundraising milestones
- Hire, onboard and lead the first engineers
- Ship weekly under real customer and investor pressure
- Instrument the metrics investors will actually diligence

Prerequisites

- Founder, senior engineer or technical leader with an active mandate
- Working product, prototype or company brief to develop in cohort
- Ability to travel to at least one residency window
- 15–20 hrs / week study time

Capstone

A live startup with paying customers, an investor-grade dataroom and a 12-month engineering plan.

P30 · Advanced

AI FinTech Engineering

16 weeks · 290 study hours · 18 ECTS · Cohort · \$6,800

A rigorous program for engineers building payments, lending, wealth and infrastructure products under real financial regulation.

Learning outcomes

- Design ledger and payments systems with double-entry rigour
- Ship AI-augmented risk, fraud and KYC pipelines
- Meet PCI DSS, PSD2 and equivalent controls
- Operate financial systems with reconciliations and audit trails

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling

- 10–15 hrs / week study time

Capstone

A fintech product with a reconciled ledger, KYC pipeline and an external audit-ready dataroom.

P31 · Advanced

AI HealthTech Engineering

16 weeks · 290 study hours · 18 ECTS · Cohort · \$6,800

Engineer AI-augmented software for hospitals, clinics and health insurers — with HIPAA, GDPR and clinical safety practice throughout.

Learning outcomes

- Design HIPAA-compliant clinical systems
- Integrate EHRs and health-data standards (FHIR, HL7)
- Ship AI features with clinical evaluation and audit
- Operate under real incident and reporting obligations

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A clinical AI feature with an evaluation report, safety case and deployment plan.

P32 · Foundational

AI EduTech Engineering

12 weeks · 200 study hours · 12 ECTS · Cohort · \$4,200

Design and ship learning products that meaningfully improve outcomes — combining AI tutoring, assessment engineering and learning science.

Learning outcomes

- Design AI tutors grounded in learning science
- Build assessment engines that measure real understanding
- Ship learning products with retention and outcome metrics
- Handle student data with privacy-first engineering

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English

- 6–10 hrs / week study time

Capstone

A shipped learning product with an outcome study and a public privacy policy.

P33 · Advanced

AI GovTech Engineering

14 weeks · 260 study hours · 16 ECTS · Cohort · \$5,600

Engineer digital services for governments and regulators — with accessibility, procurement, security and transparency built in.

Learning outcomes

- Design accessible, multilingual public services
- Meet public-sector security and procurement standards
- Ship AI features with explainability and audit
- Operate services under FOIA/transparency obligations

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling
- 10–15 hrs / week study time

Capstone

A public-service prototype with an accessibility audit and a signed security-in-depth plan.

P34 · Foundational

AI PropTech Engineering

12 weeks · 200 study hours · 12 ECTS · Cohort · \$4,200

A practical program on building AI products for the built environment — listings, leasing, construction, facilities and portfolio operations.

Learning outcomes

- Design AI-native marketplaces for real estate
- Ingest and normalise property, geospatial and IoT data
- Ship AI features for underwriting, leasing and operations
- Instrument outcomes for landlords, tenants and portfolios

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English

- 6–10 hrs / week study time

Capstone

A PropTech product live with two customer portfolios and a public case study.

P35 · Foundational

AI HospitalityTech Engineering

12 weeks · 190 study hours · 12 ECTS · Cohort · \$3,900

Design and ship AI-augmented hospitality software — bookings, guest experience, revenue management and staff operations — for hotels, restaurants and destinations.

Learning outcomes

- Design AI-native booking and guest-experience flows
- Ship revenue-management features that improve occupancy
- Deploy multilingual voice and messaging agents
- Instrument NPS, RevPAR and staff efficiency

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English
- 6–10 hrs / week study time

Capstone

A hospitality product live with at least one venue and a public operations case study.

P36 · Advanced

AI LegalTech Engineering

14 weeks · 260 study hours · 16 ECTS · Cohort · \$5,600

Build AI systems that lawyers and compliance teams can actually rely on — with retrieval, citation, evaluation and audit throughout.

Learning outcomes

- Design cited, evaluated retrieval for legal corpora
- Ship contract and compliance workflows with human review
- Build audit trails that satisfy legal and regulator scrutiny
- Operate legal AI products with clear liability boundaries

Prerequisites

- One completed foundational program OR 6+ months of practical building
- Working knowledge of one modern language (TypeScript, Python, Go)
- Comfort with Git, the terminal and modern package tooling

- 10–15 hrs / week study time

Capstone

A legal AI product in use by a real firm, with an eval report and audit trail.

P37 · Foundational

AI Marketing Engineering

10 weeks · 160 study hours · 10 ECTS · Cohort · \$3,400

A practical program that treats marketing as an engineering system — attribution, experimentation, content pipelines and lifecycle automation, all AI-augmented.

Learning outcomes

- Design multi-touch attribution you can defend
- Ship content pipelines that scale with quality
- Run experiments with real statistical rigour
- Automate lifecycle marketing across channels

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English
- 6–10 hrs / week study time

Capstone

A growth system live for a real product with a public attribution and experiment writeup.

P38 · Foundational

AI Sales Engineering

10 weeks · 160 study hours · 10 ECTS · Cohort · \$3,400

Engineer the modern sales stack: AI SDRs, revenue operations, forecasting, enablement and closing workflows — measured against real ARR.

Learning outcomes

- Design AI-augmented outbound systems with clear guardrails
- Instrument pipeline, forecast and win-rate honestly
- Ship enablement content that reps actually use
- Automate closing workflows without hurting deal quality

Prerequisites

- No prior code required — curiosity and commitment to weekly shipping
- Laptop with a modern browser (Chrome, Arc, Safari, Firefox)
- Fluent working English

- 6–10 hrs / week study time

Capstone

A sales system live for a real product with a public pipeline and forecast writeup.