Training: AWS
Spec-Driven Development with Kiro

TRAINING GOALS:

Spec-Driven Development with Kiro is a two-day, instructor-led training course designed for developers, software engineers, and technical leads adopting AI-assisted, agentic development practices. The course teaches the principles of agentic coding and how to apply them using Kiro, the agentic IDE for software development. Participants learn to plan and implement features through Kiro Feature Specs and Bugfix Specs, control agent behavior with steering files and execution modes, and extend agent capabilities with Model Context Protocol (MCP) servers and Kiro Powers. The course also covers automating workflows with agent hooks, packaging reusable expertise with agent skills and custom subagents, and configuring projects for team collaboration and enterprise governance. Handson labs are interleaved with module content throughout each day. On Day 1, learners progressively build a weather application using each Kiro capability as it is taught. On Day 2, learners deploy, extend, and team-enable a pre-built micro-blogging application.

Course objectives

In this course, you learn to do the following:

- Implement spec-driven development workflows using specifications to plan, design, and execute features and fixes
- Configure and control agent behavior using steering files, context providers, execution modes (Autopilot and Supervised), and custom subagents
- Extend agent capabilities using Model Context Protocol (MCP) servers and Kiro Powers to integrate external tools, services, and domain expertise
- Automate and scale development workflows using agent hooks, agent skills, shared steering, and custom subagents
- Build and share reusable agent capabilities by creating custom Kiro Powers, agent skills, and custom subagents for team-specific workflows
- Apply enterprise governance controls for MCP registry allowlisting, model governance, and extension management

Intended audience

This course is intended for:

Compendium Centrum Edukacyjne Spółka z o.o.
ul. Tatarska 5, 30-103 Kraków, tel.: (12) 298 47 77
ul. Postępu 18B, 02-676 Warszawa, tel.: (22) 417 41 70

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- Software developers and engineers
- Technical leads adopting AI-assisted development workflows
- Development teams adopting agentic coding practices
- DevOps engineers integrating AI agents into delivery pipelines

CONSPECT:

- Module 1: Introduction to Agentic Development with Kiro
  - The agentic coding paradigm and Kiro core capabilities
  - Five principles of effective agentic development
  - Kiro IDE vs Kiro CLI
  - Vibe sessions, Spec sessions, and model selection
- Module 2: Spec-Driven Development with Feature Specs
  - The three-phase spec workflow (Requirements, Design, Tasks)
  - Requirements-First workflow and EARS notation
  - Design-First workflow (High-Level and Low-Level Design)
  - Correctness with property-based testing
- Module 3: Steering, Context, and Agent Control
  - Steering files and foundational context
  - Custom steering files and inclusion modes (always, fileMatch, manual, auto)
  - Workspace and global scope
  - Context providers and session management
  - Autopilot and Supervised execution modes
  - Trusted commands and trusted tools
- Module 4: Bugfix Specs
  - When to use Bugfix Specs
  - The bugfix analysis phase: current, expected, and unchanged behavior
  - Root cause analysis and design
  - Property-based testing for regression prevention
- Lab: Kiro Spec-Driven Development Foundations
- Module 5: MCP Servers and Tool Integration
  - Model Context Protocol fundamentals and client-server architecture
  - Configuring MCP servers at workspace and user scope
  - Managing servers, tools, and auto-approve
  - Using MCP tools in chat and troubleshooting
- Module 6: Kiro Powers

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- The context overload problem and how Powers solve it
- Power directory structure (POWER.md, mcp.json, steering)
- Installing and using Powers from the IDE and kiro.dev
- Authoring and sharing custom Powers

- Module 7: Agent Hooks, Skills, and Custom Subagents
  - Agent hooks: triggers, actions, and creation
  - Agent skills: portable instruction packages with progressive disclosure
  - Custom subagents: scoped tool permissions and delegation
  - Skills vs Steering vs Powers
- Module 8: Team Collaboration and Enterprise Governance
  - Shared workspace configuration through the .kiro directory
  - Steering file organization and spec review conventions for teams
  - Enterprise governance: MCP registry allowlisting, model governance, extension registry,
  - web tools
- Lab: Extending and Automating with Kiro

REQUIREMENTS:

We recommend that attendees of this course have:

- Proficiency in at least one programming language
- Working knowledge of Git version control
- Basic understanding of RESTful APIs and cloud application concepts
- Foundational knowledge of generative AI concepts (LLMs, tokens, inference)

Difficulty level

CERTIFICATE:

The participants will obtain certificates signed by AWS (course completion).

TRAINER:

AWS Authorized Instructor (AAI)

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