

Claude Certified Architect – Foundations

Course description

An advanced program for solution architects and senior engineers designing production-grade, agentic applications powered by Claude. The curriculum aligns with Anthropic's official technical certification (CCA – Foundations) and maps directly to five exam domains covering agentic architecture and orchestration, tool and MCP design, Claude Code configuration, structured output, and context management.

- Course level: Beginner (advanced prerequisite experience required)
- Duration: 3 days

Activities

Approximately 70% hands-on, with architecture and design labs throughout, plus demonstrations and guided walkthroughs.

Course objectives

In this course, you will learn to:

- Design end-to-end agentic architectures using Claude, MCP, and the Agent SDK
- Apply reliability patterns and guardrails to agent loops
- Design effective tool schemas and diagnose flawed ones
- Implement and secure production MCP deployments
- Configure Claude Code (CLAUDE.md, hooks, permissions, and slash commands)
- Integrate Claude Code into CI/CD workflows

- Enforce structured output with schemas, validation, and retries
- Manage context windows, caching, compaction, and token budgets
- Prepare for the Claude Certified Architect – Foundations exam

Intended audience

This course is intended for architects and senior engineers designing Claude applications:

- Solution architects designing production-grade Claude applications
- AI engineers and developers with 6+ months building on Claude
- Technical leads responsible for agentic system design
- Product engineers and technical PMs managing architectural trade-offs

Prerequisites

We recommend that attendees of this course have:

- 6+ months hands-on production experience with Claude (recommended)
- Working knowledge of the Claude API, Agent SDK, and MCP
- Familiarity with Claude Code and modern development workflows
- Comfort with JSON, APIs, and application architecture
- Recommended: Developer – Foundations certification or equivalent

Course outline

Module 1: Agentic Architecture & Orchestration (~27%)

- The observe–think–act–respond agent loop
- Orchestration patterns and subagent design
- Tool-calling sequences and control flow
- Guardrails and reliability patterns for safe deployment
- Claude Agent SDK in production architectures
- Lab: Design an orchestrated multi-step agent
- Lab: Add guardrails to an agent loop

Module 2: Tool Design & MCP Integration (~18%)

- Designing effective, reliable tool schemas
- Diagnosing broken or suboptimal tool descriptions
- MCP servers and clients: architecture and transports
- SSE versus other transport trade-offs
- Authentication and security for production MCP
- Lab: Fix a flawed tool schema

- Lab: Stand up and integrate an MCP server

Module 3: Claude Code Configuration & Workflows (~20%)

- CLAUDE.md hierarchy and persistent project context
- Custom slash commands, hooks, and permissions
- Settings and secure configuration
- CI/CD pipeline integration and AI-first workflows
- Lab: Configure CLAUDE.md, hooks, and permissions
- Lab: Integrate Claude Code into a CI pipeline

Module 4: Prompt Engineering & Structured Output (~20%)

- JSON schema enforcement and structured output
- Few-shot techniques for production prompts
- Validation and retry loops
- Programmatic enforcement versus prompt-based guidance
- Lab: Build a schema-enforced extraction pipeline with retries

Module 5: Context Management & Reliability (~15%)

- CALM framework for context management
- Prompt caching with `cache_control` breakpoints
- Conversation compaction and long-context handling
- Token estimation, budget management, and confidence calibration
- Lab: Apply prompt caching and compaction to a long-running conversation

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To know more about our cloud certification training, email at sales@cloudthat.com or call us at **+91-8880002200** or **+1-8555588830** for those from outside India.