BOOST
THE LEADING TRAINING PROVIDER

Information Technology

Fundamentals of API design and API management using Apigee

Course Introduction

Over the next five days, Participants will gain comprehensive knowledge and practical skills to design, secure, and manage APIs effectively using Apigee, one of the leading API management platforms.

This program will provide participants with the tools needed to understand API concepts, implement best practices, and manage APIs at scale.

In this hands-on, practical program, participants will learn how to leverage Apigee to build and manage APIs that power modern applications.

By the end of this training program, participants will be confident in designing APIs, securing them, managing API traffic, and monitoring their performance using Apigee's advanced capabilities.

Target Audience

- Developers & Engineers – Backend, Full-Stack, SRE, DevOps.
- IT & Cloud Professionals – Cloud Architects, API Managers, Enterprise Architects.
- Business & Digital Leaders – Product Managers, Consultants, Startup Founders.

Learning Objectives

- Learn the core principles of API design, including RESTful best practices and versioning strategies.
- Gain hands-on experience in designing APIs and generating API documentation using tools like Swagger/OpenAPI.
- Understand the key components of Apigee and how it supports API management.
- Navigate the Apigee console and deploy APIs effectively using the platform.

- Create and manage API proxies and configure routing, traffic management, and load balancing.
- Gain knowledge about API security and implement industry-standard authentication and authorization mechanisms such as OAuth 2.0 and JWT.
- Secure APIs using API keys and other security measures to protect sensitive data.
- Learn how to manage and control API traffic, including implementing rate limiting, throttling, and caching strategies for optimal performance.
- Apply best practices for managing high volumes of API requests and ensuring API reliability.
- Understand different API monetization models and how to implement them in Apigee.
- Use Apigee's analytics tools to track API performance, usage, and other critical metrics.
- Generate custom reports to analyze and optimize API performance.
- Explore advanced features such as writing custom policies with JavaScript and creating custom extensions in Apigee.
- Enhance API functionality through policy customization and manage complex scenarios in API management.
- Understand the role of APIs in microservices architectures and learn how to integrate and manage microservices using Apigee.
- Use Apigee as an API Gateway to facilitate the aggregation and orchestration of microservices APIs.
- Implement unit and integration tests for APIs to ensure functionality and reliability.
- Use Apigee's monitoring and debugging tools to troubleshoot issues and optimize API traffic.

Course Outline

- **DAY 01**

  Introduction to APIs and Apigee

    - What is an API?
    - Definition and types of APIs.
    - Why APIs are important in modern architectures?
    - Apigee platform overview.

- ◦ Key components of Apigee.
  - ◦ Apigee's architecture and deployment models.
  - ◦ Navigating the Apigee console.

Fundamentals of API Design

  - ◦ API design principles.
  - ◦ RESTful design best practices.
  - ◦ Versioning strategies.
  - ◦ Importance of API documentation.
  - ◦ Tools for generating and managing API documentation.
  - ◦ Practical application: Designing your first API using REST principles.
- **Day 02**

Introduction to API Proxies and Apigee Edge

  - ◦ What is an API Proxy and how does it work?
  - ◦ Proxy Lifecycle.
  - ◦ Steps for creating and deploying an API Proxy in Apigee.
  - ◦ Configuring the proxy with Target URLs.
  - ◦ Traffic routing and load balancing with API Proxies.
  - ◦ Practical application: Create an API proxy for a simple backend API.

API Traffic Management and Rate Limiting

  - ◦ Monitoring and controlling API traffic.
  - ◦ Rate Limiting, Quotas, and Throttling.
  - ◦ Setting up API quotas and request limits.
  - ◦ Best Practices for Handling High API Traffic.
  - ◦ Caching strategies for performance optimization.
  - ◦ Practical application.

- **Day 03**

  API Monetization and Analytics

  - API Monetization Strategies.
  - Creating pricing models.
  - Billing models with Apigee.
  - API Analytics in Apigee.
  - Understanding API Analytics dashboard.
  - Tracking API usage and performance metrics.
  - Custom analytics reports.
  - Practical application.

  API Security – Authentication and Authorization

  - Why securing APIs is critical?
  - Types of API security.
  - What is OAuth 2.0 and how does it work?
  - Implementing OAuth 2.0 in Apigee.
  - API key generation and usage.
  - Implementing JWT for secure communication.
  - Practical application.

- **Day 04**

  Apigee Edge Advanced Features – Policies and Customizations

  - Introduction to Apigee policies.
  - Writing custom policies with JavaScript.
  - Creating Custom Extensions with Apigee Edge.
  - Overview of custom extensions.
  - Building and deploying custom extensions in Apigee.
  - Practical application.

  Advanced API Design Techniques

  - Best practices for managing API errors.
  - Standardizing error responses.
  - Defining error codes and messages.
  - API Versioning Best Practices.
  - Managing backward compatibility.
  - API Documentation with Swagger/OpenAPI.

- ◦ Writing comprehensive API documentation.
- ◦ Practical application: Implement error handling and versioning strategies in your API proxy.
- **Day 05**

API Gateway and Microservices Integration

- ◦ What are microservices and why are they important?
- ◦ The role of APIs in a microservices architecture.
- ◦ Integrating Apigee with Microservices.
- ◦ API Gateway role in microservices.
- ◦ Managing microservices APIs via Apigee.
- ◦ Aggregation and orchestration in API Gateways.
- ◦ Managing microservices with Apigee Edge.
- ◦ Practical application: Integrate multiple microservices APIs using Apigee Edge

API Testing and Monitoring:

- ◦ Unit testing and integration testing for APIs.
- ◦ Tools for automated API testing.
- ◦ Using Apigee's monitoring tools to track performance.
- ◦ Setting up alerts and notifications.
- ◦ Debugging API traffic in Apigee.
- ◦ Practical application: Set up testing and monitoring for an API in Apigee.

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 12, 2025	May 16, 2025	5 days	4250.00 $	UAE - Dubai
June 1, 2025	June 5, 2025	5 days	2150.00 $	Virtual - Online
Dec. 22, 2025	Dec. 26, 2025	5 days	4250.00 $	UAE - Abu Dhabi