Course Duration: 16 hours (2 Days)

AWS Certified AI Practitioner (AIF-C01)

The **AWS Certified AI Practitioner** course is designed for **beginners and professionals** looking to gain foundational knowledge in **Artificial Intelligence (AI) and Machine Learning (ML) on AWS**. This course covers **key AI/ML concepts, AWS AI services, and practical applications** of AI-driven solutions. Participants will learn about **machine learning workflows, AWS AI services like Amazon SageMaker, AWS AI/ML ethics, and responsible AI practices**.

Course objectives

- By the end of this course, participants will be able to:
- Understand the fundamentals of AI and ML, including key concepts, techniques, and terminologies.
- Recognize the AWS AI/ML service landscape and their applications in real-world scenarios.
- Work with pre-trained AI services such as Amazon Comprehend, Rekognition, Textract, Polly, and Transcribe.
- Understand the ML model lifecycle and basic concepts of supervised, unsupervised, and reinforcement learning.
- Use Amazon SageMaker for building, training, and deploying ML models.
- Explore ethical AI principles and responsible AI practices in AWS.

Prerequisites

- Basic understanding of cloud computing and AWS fundamentals.
- No prior AI/ML experience required, but familiarity with basic statistics and data concepts is beneficial.

Target Audience

- Beginners & Business Professionals looking to understand AI/ML on AWS.
- Developers & Cloud Engineers seeking to integrate AWS AI services into applications.
- Data Analysts & Scientists exploring AWS ML tools and automation.
- IT Leaders & Decision Makers assessing AI/ML adoption strategies.
- Students & AI Enthusiasts preparing for AWS AI certification.

Course outline

Module 1: Introduction to Cloud Computing

- What is Cloud Computing
- Traditional Data Center
- Different types of Cloud Computing
- AWS Cloud Overview
- Shared responsibility model

Module 2: Introduction to AI and Machine Learning on AWS

- Overview of AI/ML concepts
- AWS AI and ML services overview
- Use cases of AI/ML in real-world scenarios

Module 3: Machine Learning Fundamentals

- Supervised, Unsupervised, and Reinforcement Learning
- Key ML concepts: Features, Models, and Algorithms
- Steps in a machine learning pipeline

Module 4: AWS AI Services for Text & Speech Processing

- Introduction to **Amazon Comprehend** for NLP.
- Text-to-speech with **Amazon Polly**.
- Speech-to-text with **Amazon Transcribe**.

Hands-on Lab: Converting text to speech and extracting key phrases from text.

Module 5: AWS AI Services for Image & Video Processing

- Introduction to **Amazon Rekognition** for image and facial analysis.
- Video content analysis with **Rekognition Video**.
- Document processing with **Amazon Textract**.

Hands-on Lab: Analyzing images and extracting text from documents.

Module 6: Machine Learning with Amazon SageMaker

- Introduction to machine learning models.
- Supervised vs. Unsupervised learning.
- Building, training, and deploying ML models using **Amazon SageMaker**.

Module 7: Prompt Engineering

- What is prompt engineering
- Prompt performance optimization
- Prompt Engineering Techniques
- Prompt templates

Module 8: Amazon Q

- Introduction
- Amazon Q business

- Amazon Q Apps
- Amazon Q developer
- AWS PartyRock

Module 9: Ethics, Responsible AI, and AWS AI/ML Best Practices

- Understanding AI bias and fairness.
- AWS responsible AI principles.
- Governance and security best practices for AI applications.

Module 10: AWS Security Services

- IAM
    - Users, Groups, Policies
    - Roles
- Amazon EC2
    - Create an EC2 instance with User data to have a website
- AWS Lambda
- Amazon Macie
- Amazon Inspector
- AWS Config
- AWS Cloudtrail
- AWS Artifact
- AWS Trusted Advisor

Module 11: Exam Preparation and Next Steps

- Understanding the ALF-C01 exam format and domains
- Sample questions and key concepts review
- Tips for studying and certification success
- Beyond certification: Career paths in AI with AWS