**Course Title:**

**"AI Integration with MuleSoft: Build Smart APIs and Workflows"**

**🧩 Target Audience:**

* Integration developers
* MuleSoft professionals looking to upskill
* AI/ML beginners interested in practical integration
* Architects exploring AI automation

**📚 Course Modules Breakdown**

**Module 1: Course Introduction**

* What students will learn
* Who this course is for
* Tools and accounts required
* Installing Anypoint Studio, Postman, Python (optional)

**Module 2: MuleSoft Essentials for AI Integration**

* Brief on MuleSoft and API-led connectivity
* Overview of MuleSoft connectors and flow design
* Calling REST APIs from MuleSoft (basic example)

**Module 3: Understanding AI for Integrators**

* Overview of AI domains: NLP, CV, ML
* REST APIs offered by AI providers (OpenAI, Azure AI, AWS, Google Cloud)
* JSON and data formats in AI APIs

**Module 4: Project 1 - AI Text Processing**

**Use Case**: Summarize customer support messages with OpenAI

* Setup OpenAI API
* Design MuleSoft flow to accept support text
* Call OpenAI API for summarization
* Return structured summary

**Module 5: Project 2 - AI Image Recognition**

**Use Case**: Classify product images with AWS Rekognition

* Upload image from Postman
* Call AWS Rekognition from MuleSoft
* Extract and return labels (e.g. "shoe", "sports", "red")

**Module 6: Project 3 - Smart Document Workflow**

**Use Case**: Invoice Processing

* OCR using Google Vision
* Extracted data sent to MuleSoft
* Validate and store data to Salesforce/DB

**Module 7: Deployment & Monitoring**

* Deploying to CloudHub
* Monitoring flows
* Error handling best practices
* Logging and alerts

**Module 8: Final Project & Wrap-Up**

**Capstone Project**: AI-powered Customer Service Bot

* Accept query via API
* Classify and summarize using AI
* Auto-respond or route to appropriate agent

**🛠️ Bonus Materials**

* Postman collections
* AI service setup guides
* PDF cheat sheets
* GitHub repo with sample code

**AI with MuleSoft Course Content**

**Module 1: Course Introduction**

* What is AI and MuleSoft?
* Overview of the course and learning objectives
* Basic understanding of MuleSoft
* Basics of AI and its use cases

**Module 2: MuleSoft Essentials for AI Integration**

* MuleSoft architecture and API-led connectivity
* Introduction to Anypoint Studio
* Designing Mule flows
* Consuming REST APIs in MuleSoft
* Basic error handling and logging

**Module 3: AI Basics for Integrators**

* Understanding AI, Machine Learning (ML), and Natural Language Processing (NLP)
* Popular AI services and APIs (OpenAI, AWS Rekognition, Google Vision)
* Use cases of AI in integration

**Module 4: Calling AI APIs from MuleSoft**

* Calling OpenAI API for text generation
* Using AWS Rekognition for image recognition
* Implementing OCR with Google Vision API
* Using MuleSoft’s HTTP Request connector to call AI services

**Module 5: Designing Intelligent Flows**

* Data transformation using DataWeave
* Dynamic routing based on AI responses
* Error handling in AI API calls
* Logging and monitoring AI integrated flows

**Module 6: Deploying and Monitoring AI-Integrated APIs**

* Deploying MuleSoft applications on CloudHub
* API monitoring and analytics
* Scaling AI-integrated applications

**Module 7: Real-World Use Cases & Projects**

* Chatbot integration with MuleSoft and AI
* Document summarization using OpenAI
* Image classification with AWS Rekognition
* End-to-end project demonstration

**Module 8: Advanced Topics and Best Practices**

* Security best practices for AI APIs
* Cost optimization for AI usage
* Troubleshooting common issues
* Future trends in AI and integration

**Module 1: Course Introduction**

**Topics**

* **What is AI?**  
  Overview of Artificial Intelligence — types (Narrow AI, General AI), examples in daily life
* **What is MuleSoft?**  
  Introduction to MuleSoft platform, its use in enterprise integration
* **Why combine AI with MuleSoft?**  
  Benefits of integrating AI services with MuleSoft for smart automation
* **Course Objectives**  
  What students will learn — API design, Mule flows, AI API calls, real-world use cases

**Demo / Exercise**

* Overview video or interactive quiz: "Identify AI-powered products in daily life"

**Module 2: MuleSoft Essentials for AI Integration**

**Topics**

* **MuleSoft Architecture & API-led Connectivity**  
  Layers: Experience, Process, System APIs
* **Anypoint Studio Overview**  
  Interface walkthrough, Mule applications basics
* **Creating Flows**  
  How to create a simple flow with HTTP Listener and Logger
* **Calling REST APIs**  
  Using HTTP Request connector in MuleSoft
* **Error Handling & Logging**  
  Using Try-Catch scope, Logger component

**Demo / Exercise**

* Build and deploy a simple Mule app that calls a public REST API (e.g., JSONPlaceholder)
* Error handling demo in Anypoint Studio

**Module 3: AI Basics for Integrators**

**Topics**

* **Understanding AI, ML, NLP**  
  Definitions, basic concepts, examples
* **Popular AI Services**  
  OpenAI, AWS Rekognition, Google Vision, Microsoft Azure Cognitive Services
* **AI Use Cases in Integration**  
  Chatbots, image recognition, document processing

**Demo / Exercise**

* Hands-on demo: Call OpenAI playground to generate text
* Overview of AWS Rekognition console and capabilities

**Module 4: Calling AI APIs from MuleSoft**

**Topics**

* **OpenAI API**  
  Setup API keys, understanding endpoints, request/response formats
* **AWS Rekognition API**  
  Setup, image recognition and analysis examples
* **Google Vision API**  
  OCR and image labeling
* **Implementing Calls in MuleSoft**  
  Using HTTP Request Connector, setting headers, passing payload

**Demo / Exercise**

* Create a MuleSoft flow that calls OpenAI API for text completion
* Create a Mule flow to upload an image and get labels from AWS Rekognition

**Module 5: Designing Intelligent Flows**

**Topics**

* **DataWeave Transformation**  
  Mapping and transforming API responses
* **Dynamic Routing**  
  Route messages based on AI API results
* **Error Handling**  
  Handling failed AI calls, retry logic
* **Logging & Monitoring**  
  Using Logger component for flow tracing

**Demo / Exercise**

* Transform OpenAI API JSON response to a simplified text output
* Route to different flows based on confidence score from AWS Rekognition

**Module 6: Deploying and Monitoring AI-Integrated APIs**

**Topics**

* **Deploying on CloudHub**  
  Packaging apps, deployment steps
* **API Management & Monitoring**  
  Setting alerts, dashboards for AI API usage
* **Scaling**  
  Auto-scaling considerations for high load AI integrations

**Demo / Exercise**

* Deploy Mule app with AI calls to CloudHub
* Configure and view monitoring dashboards

**Module 7: Real-World Use Cases & Projects**

**Topics**

* **Chatbot Integration**  
  Use AI to power chatbots integrated via MuleSoft
* **Document Summarization**  
  Use OpenAI to summarize long text documents
* **Image Classification**  
  Classify images automatically with AWS Rekognition
* **End-to-End Project Demo**  
  Complete integration flow demo from data ingestion to AI processing

**Demo / Exercise**

* Build a chatbot that answers FAQs using AI calls in MuleSoft
* Document summarization app with text input and AI response

**Module 8: Advanced Topics and Best Practices**

**Topics**

* **Security Best Practices**  
  Securing API keys, OAuth, policies in MuleSoft
* **Cost Optimization**  
  Managing API usage, caching results
* **Troubleshooting**  
  Common issues and solutions in AI integration
* **Future Trends**  
  Emerging AI tech and its impact on integration

**Demo / Exercise**

* Implement MuleSoft policies for API key security
* Cost analysis of AI API calls in a demo project