Generative AI for Aviation Industry

Duration: 16 hours

Course Objectives

This course offers a comprehensive exploration of AI, Machine Learning (ML), and Generative AI (GenAI), focusing on their fundamentals, real-world applications, and practical use cases. The curriculum begins with an introduction to AI, ML, and GenAI, covering key distinctions, terminologies, and tools, followed by hands-on exercises comparing traditional search engines to GenAI capabilities. It delves into the evolution and applications of AI in aviation, with emphasis on prompt engineering basics and workflow mapping for operational efficiency. In the second module, the focus shifts to role-specific prompt engineering across aviation and flight operations domain. Through interactive labs and tools like Excel, ChatGPT, and Canva, participants will develop and refine prompts, identify GenAI opportunities, and create use-case solutions tailored to their professional roles. This practical and dynamic program equips learners with the knowledge and skills to leverage GenAI effectively in diverse industries.

Target Audience: Aviation Industry Staff

Tools: ChatGPT / Gemini / Claude, MS Excel, Google Colab (optional), Canva or PowerPoint

Course Pre-requisites

- Basic computer use, Excel familiarity, aviation context understanding preferred
- No programming required (except optional Python lab for engineering staff)

Course Content

Module 1: AI, Machine Learning & GenAI – Fundamentals and Real-Life Applications

- **Understanding AI, ML, and GenAI**
    - Difference between AI, ML, GenAI
    - Common terminologies
    - Key GenAI tools and models

  Lab/Exercise: Compare Outputs: Search Engine vs GenAI (ChatGPT demo)

- **Real-World Applications in Aviation (1 Hour)**
    - Evolution of AI in aviation
    - Use cases across aviation operations, safety, customer service

  Lab/Exercise: Identify 3 GenAI use cases from your current job role (Excel template)

- **Prompt Engineering Basics (1 Hour)**
    - What are prompts? Types of prompts
    - Anatomy of a good prompt
    - Iterative refinement

  Lab/Exercise: Practice converting a vague prompt into a detailed one
- **Hands-On Prompt Engineering with Scenarios**
    - Pre-designed templates for aviation
    - Role-based refinement: ops vs. customer support

  Lab/Exercise: Modify 3 prompts to fit different departments
- **Identifying Opportunities & Workflow Mapping**
    - Where GenAI fits in your current workflow
    - Rinse-repeat vs critical-thinking tasks
    - Efficiency score mapping

  Lab/Exercise: AI Opportunity Finder Sheet (Excel)

Tools: Excel, ChatGPT

Module 2: Role-Based Prompt Engineering & Use Cases

- **Customer Service & Ground Handling**
    - Automating passenger FAQs
    - Real-time status updates & lost baggage
    - Feedback summarization & sentiment analysis

  Lab/Exercise:
    - Create a baggage query assistant
    - Summarize 3 customer complaints with sentiment tagging
- **Flight Operations & Engineering**
    - Predictive maintenance basics
    - Scheduling disruptions & mitigation messages
    - Auto-generation of safety documentation

  Lab/Exercise:
    - Create a safety checklist generator prompt
    - Draft flight disruption comms for different scenarios

- **Commercial & Marketing**
    - Personalized travel offers
    - Market trend summarization
    - Creative campaign generation (copy & visual)

  Lab/Exercise:
    - Create 3 travel offers for personas
    - Generate 1 LinkedIn post + email + banner caption
    - Trend summary from public travel blog URLs
- **Support Services: HR, Finance, IT, Legal**
    - Resume screening and job description gen
    - Financial forecasting and automated reports
    - IT ticket classification, legal summarization

  Lab/Exercise:
    - Draft JD and screen 2 resumes (GenAI-assisted)
    - Summarize IT ticket data into FAQ
    - Summarize a contract paragraph and flag risks

Tools: ChatGPT, Excel, Optional Python Colab, Canva or PowerPoint