

# Generative AI and Advanced Automation for Business Innovation

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### Course Introduction:

Welcome to the **Generative AI Specialty With Advanced Automation** course. This intensive 5-day program is designed to equip you with a deep understanding of generative AI technologies, leveraging tools like **GitHub Copilot, and Hugging Face**, along with their integration into advanced automation systems and platforms like N8N. You will gain hands-on experience in building intelligent workflows, automating repetitive tasks, and creating AI-driven content solutions. By the end of this course, you will be able to innovate, optimize, and automate real-world processes using modern AI technologies and industry-grade automation tools.

### Day 1: Foundations of AI & Automation

#### Module 1: AI, ML & Generative AI Basics

- Overview of AI, ML, Deep Learning
- Where Generative AI fits in
- Introduction to GANs, VAEs (concept level)
- Understanding Salesforce Integration
- Real-world business use cases

#### Lab Exercises:

1. Identify 3 real-world business problems where Generative AI can be applied
2. Create a simple AI-generated output (text/image) using any GenAI tool

#### Module 2: Ethics & Business Automation Fundamentals

- Ethical issues: deepfakes, bias, misuse

- Responsible AI usage
- Introduction to business automation
- Data Export from Salesforce and Other Providers
- Automation benefits (cost, speed, efficiency)

**Lab Exercises:**

1. Analyse a scenario where AI misuse can happen and propose safeguards
2. Identify one manual business process and redesign it using automation

## **Day 2: Advanced GenAI & Automation Systems**

### **Module 3: GANs & VAEs Deep Dive**

- GAN architecture (Generator vs Discriminator)
- VAE working (latent space concept)
- Salesforce Integration In Automations
- Use cases (image, text, synthetic data)
- Comparison: GAN vs VAE

**Lab Exercises:**

1. Conceptually design a GAN-based use case (no heavy coding required)
2. Generate sample outputs using any GAN-based online tool

### **Module 4: AI + Automation + RPA Integration**

- What is RPA
- AI + RPA combination
- Intelligent automation systems
- Tools overview (Copilot, Hugging Face, etc)

**Lab Exercises:**

1. Design a workflow combining AI + RPA for a business task

2. Create a basic automation flow using any RPA/demo tool

## **Day 3: AI-Driven Automation Design**

### **Module 5: AI Strategy & Model Implementation**

- Designing AI-driven automation strategies
- Building simple AI models (conceptual)
- Testing & validation
- Business use-case mapping
- Model Overview (Microsoft Copilot , Hugging Face, etc)

#### **Lab Exercises:**

1. Create an AI automation strategy for a company (sales/support/HR)
2. Map input → AI → output flow for a real-world process

### **Module 6: N8N + JavaScript Essentials**

- Introduction to N8N
- Workflow structure (nodes, triggers)
- JavaScript basics for automation
- Data handling between nodes

#### **Lab Exercises:**

1. Build a simple N8N workflow (trigger → action)
2. Write a small JS snippet to manipulate data inside N8N

## **Day 4: Content Creation & Communication Automation**

### **Module 7: AI Content Generation Automation**

- AI image generation workflows
- AI audio & video generation basics for sales boost

- Integrating AI tools with N8N
- Managing generated assets

**Lab Exercises:**

1. Create a workflow for AI image generation
2. Generate audio/video content using AI tools

**Module 8: WhatsApp + Database Automation**

- WhatsApp API integration
- Automated messaging workflows
- Database integration (MySQL/PostgreSQL)
- CRUD operations with automation

**Lab Exercises:**

1. Design a WhatsApp auto-reply system
2. Create a workflow that stores user data into a database

**Day 5: System Integration & Real-World Implementation**

**Module 9: Email Automation & Unified Systems**

- AI-powered email classification & response
- Connecting email with N8N
- Multi-system integration
- Building unified workflows

**Lab Exercises:**

1. Build an AI-based email auto-response system
2. Create a workflow connecting email + database + AI

## **Module 10: Capstone + Future of AI Automation**

- End-to-end system design
- Master dashboard creation
- Emerging trends in AI & automation
- Career roadmap & next steps

### **Lab Exercises:**

1. Design a complete AI automation solution (capstone idea)
2. Create a blueprint of a master dashboard integrating all systems

