

AI Workflow Automation

Duration: 3 Weeks (15 Days)

Format: Instructor-led (In-person or Online) with hands-on labs, assignments, and a final project

Week 1: Fundamentals of N8N & Workflow Automation

Day 1: Introduction to Workflow Automation & N8N

- Overview of workflow automation and its impact
- What is N8N? Features, benefits, and real-world use cases
- Understanding N8N's node-based workflow approach
- Setting up N8N (Cloud & Self-Hosted options)
- **Hands-on:** Installing and running N8N locally

Resources

<https://www.techtarget.com/searchcontentmanagement/definition/workflow-automation>

<https://datascientest.com/en/n8n-an-overview-of-the-workflow-automation-tool>

<https://blog.n8n.io/ai-workflow-automation>

<https://www.youtube.com/watch?v=YHsN8jb8A8M>

Day 2: Core Concepts of N8N

- Nodes, workflows, and executions in N8N
- Understanding JSON, variables, and expressions
- Triggers: Webhooks, polling, and event-driven workflows
- **Hands-on:** Building a simple workflow from scratch

Resources

https://youtu.be/4BVTkqbn_tY?si=GbpvcldsK_BkD4G2

https://youtu.be/y_cpFMF1pzk?si=YjO8HC2NvrcMgtGu

<https://youtu.be/rCPXBkeBWCQ?si=hxxW1iiW67fYUPZ6>

<https://youtu.be/2YfWuNziPE4?si=AWckwAvyI66jAgxa>

https://youtu.be/kkrA7tGHYNo?si=ALNBjmtk_Swkkb6f

https://youtu.be/Rmi-ckbMOQE?si=Re1Vlh19_d6zAEFd

<https://youtu.be/XEUVI3bbMhI?si=ul6gvY3SrpKE40CA>

https://youtu.be/Gxe_RfCRH-o?si=NwLk-M02M_nOMxm-

<https://youtu.be/pl0W-0Qcwmo?si=lg5eBOsg-klfOfou>

<https://youtu.be/380Z8cZyFc8?si=MEJTgfyobt0K7K3E>

Day 3: APIs & External Integrations

- Understanding APIs (REST, GraphQL) and authentication (OAuth2, API Keys)
- Using the HTTP Request Node for API calls
- Connecting with third-party services (Google, Slack, Zapier)
- **Hands-on:** Fetching data from an API and using it in a workflow

Resources

https://youtu.be/ju9xk_QX990?si=-y6LAzCWAAbVWJP_0

<https://youtu.be/Lfd23yFKyUo?si=K60Ebok3ArfVihuT>

<https://www.youtube.com/live/AcgvkxismG0?si=ocQsH5phhLLRRmbo>

Day 4: Data Processing & Transformation in N8N

- Parsing and manipulating JSON data
- Using JavaScript code nodes for custom logic
- Handling data storage (Google Sheets, Airtable, databases)
- Hands-on: ETL (Extract, Transform, Load) workflow

https://youtu.be/pWGXIZBGU4k?si=1tKBwjw_H1FI-CHB

<https://youtu.be/mQHT3Unn4tY?si=5g9GQTtvxPw4QjZg>

<https://docs.n8n.io/courses/level-two/chapter-1/#transforming-data>

<https://youtu.be/zhxycn-rr1g?si=qAcN9Umg3lrr5Jte>

Day 5: Practice and Exercise

- **Exercise:**
<https://docs.google.com/document/d/1fCTfVzZvctGZYTnpokQkjJDqaKSg7jteoAXcjWUyFv8/edit?usp=sharing>
- **Weekend Practice:**
<https://docs.google.com/document/d/1fCTfVzZvctGZYTnpokQkjJDqaKSg7jteoAXcjWUyFv8/edit?usp=sharing>

Week 2: AI Integration & Advanced Workflow Design

Day 6: AI and N8N - Introduction to AI-Powered Automation

- How AI enhances workflow automation
- Connecting N8N to AI services (OpenAI, Hugging Face, Google AI)
- Getting free OpenAI API keys
- Hands-on: Automating a basic AI-powered task (e.g., calendar event planner)

Resources

https://youtu.be/mjiSY3LZggc?si=xIPAlBna_bfMEGKn

<https://youtu.be/ISwMtsm6oDU?si=f-v8EPGJ4AsAfLUS>

<https://youtu.be/ZHH3sr234zY?si=wIz7ydZGT4V6GoAr>

Day 7: AI-Powered Text Processing in N8N

- Sentiment analysis, text summarization, and translation using AI
- Automating content moderation workflows
- Hands-on: Creating an AI-powered youtube transcript automation workflow

Resource

https://youtu.be/zl5tDaFxrNo?si=KJiE_JAWvoQVfUq

Day 8: AI-Powered Chatbots & Notifications

- Integrating N8N with WhatsApp, Telegram, and Slack
- AI-driven chatbot responses and auto-reply bots
- Hands-on: Building an AI-enhanced customer support bot

Resource

<https://youtu.be/U2YbqInv5ag?si=aqvhPpT62fN0GZ4e>

Day 9: Image & Document Processing with AI

- AI-powered OCR (Optical Character Recognition) and document automation
- Automating image classification and recognition tasks
- Hands-on: Extracting and processing data from documents

Resource

<https://youtu.be/hlf3P7UTILc?si=JTPug7k5RnIIQ48v>

<https://youtu.be/skHe-qIRkM4?si=iDWJpIDH7iz8TuC8>

Day 10: Real-World Business Automation Scenarios

- AI + Automation in E-commerce (product recommendations, order processing)
- AI + Automation in Marketing (personalized email campaigns, lead scoring)
- AI + Automation in HR & Recruitment (resume screening, interview scheduling)
- Hands-on: Designing a business-specific AI workflow

Resources

<https://www.rapidinnovation.io/post/ai-powered-product-recommendations-in-e-commerce>

<https://ecombalance.com/ai-in-ecommerce-product-recommendations/>

<https://www.sprinklr.com/blog/ai-in-marketing-automation/>

<https://dwrightpatterson.co.uk/ai-and-automation-in-recruitment-revolutionizing-the-hiring-landscape/>

Week 3: Capstone Project

Day 11-14: Capstone Project – Automate a Real-World AI Workflow

- Individual/Group Project: Design & Implement a fully automated AI workflow
- Examples: AI-powered customer support, automated content generation, AI-driven data pipeline
- Hands-on: Development, testing, and debugging

Day 15: Project Presentations & Q&A

- Final project presentations and peer review
- Troubleshooting & final optimizations