

SkillNexa AI Academy

AI Specialist

Deep Learning, NLP & Intelligent Systems

Program Level: Specialist

Total Duration: 96 Hours

Delivery: Cohort-Based + Instructor-Led + Hands-On Labs

Pathway: Foundation → Practitioner → **Specialist**

The pathway introduces students to:

- Neural networks
 - Deep learning
 - Natural language processing
 - Generative AI concepts
 - Robotics
 - Autonomous systems
 - AI experimentation
 - Research methodology
 - Responsible AI
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PROGRAM GOAL

AI Specialist program moves students from **building conventional machine learning applications to understanding advanced intelligent systems.**

Students explore how AI systems can:

- Learn complex patterns
- Process human language
- Analyze images and other data
- Interact with physical environments
- Make decisions autonomously
- Be evaluated through structured experimentation

The program emphasizes **hands-on experimentation, AI model development, research, and technical documentation.**

PROGRAM STRUCTURE

Module	Topic	Hours
Module 1	Deep Learning	24
Module 2	Natural Language Processing	20
Module 3	Robotics & Autonomous Systems	20
Module 4	AI Research Methods	16
Module 5	Advanced AI Project	16
Total		96 Hours

Course Curriculum

MODULE 1 — DEEP LEARNING

1.1 Introduction to Deep Learning

LAB 1.1

1.2 Neural Networks

LAB 1.2

1.3 Layers & Models

LAB 1.3

1.4 Training Neural Networks

LAB 1.4

1.5 Deep Learning Optimization

LAB 1.5

1.6 Neural Network Applications

LAB 1.6

1.7 Deep Learning Project

MODULE 1 ASSESSMENT

MODULE 2 — NATURAL LANGUAGE PROCESSING

2.1 Introduction to NLP

LAB 2.1

2.2 Text Processing

LAB 2.2

2.3 Sentiment Analysis

LAB 2.3

2.4 Chatbots

LAB 2.4

2.5 Large Language Models

LAB 2.5

2.6 NLP Limitations & Responsible Use

LAB 2.6

2.7 NLP Project

Module 2 Assessment

MODULE 3 — ROBOTICS & AUTONOMOUS SYSTEMS

3.1 Robotics Fundamentals

LAB 3.1

3.2 Sensors

LAB 3.2

3.3 Automation

LAB 3.3

3.4 Autonomous Decision Making

LAB 3.4

3.5 Robotics & AI Ethics

LAB 3.5

3.6 Robotics Project

MODULE 3 ASSESSMENT

MODULE 4 — AI RESEARCH METHODS

4.1 Introduction to AI Research

LAB 4.1

4.2 Reading AI Research Papers

LAB 4.2

4.3 Experiment Design

LAB 4.3

4.4 AI Evaluation

LAB 4.4

4.5 Research Ethics

LAB 4.5

4.6 Research Presentation

MODULE 4 ASSESSMENT

MODULE 5 — ADVANCED AI PROJECT

5.1 Project Selection

5.2 Project Planning

LAB 5.2

5.3 Project Development

LAB 5.3

5.4 Testing & Evaluation

LAB 5.4

5.5 Technical Documentation

5.6 Advanced AI Showcase

MODULE 5 ASSESSMENT

FINAL ASSESSMENT