



EDUBLENDS

Fuel Your Future.

Fuel your **Future**

Dive into Edublends Academy's world of opportunities with industry internships, specialized training, and globally recognized certifications



Track 4: Junior Engineer – AI

Level 3 to Level 5 · 450 Hours Total

At EduBlends, we don't just train—we create future industry leaders!

Program Summary

A comprehensive software engineering pathway focused on building production-ready AI applications — from generative AI and prompt engineering to automation and business intelligence.



Program Duration

450 hours across 5 modules
(approx. 33 weeks)



Weekly effort

12-15 hours a week



Learning Mode: Online and Offline
Classes, including Pre-Recorded
Videos, Live Sessions, and Interactive
Q&A Sessions.



Cloud Lab Integration with every
module, including GPU-backed and
containerised environments



**Industry-Sponsored Internship
Facilitation**



Certificate Upon successful
completion of each module,
participants will be awarded a verified
digital certificate by EduBlends and
Industry

A Progressive Learning Pathway from AI Foundations to Production Applications

At EduBlends Academy, we provide a structured learning pathway that allows students to build production-grade AI engineering skills across their graduation journey.

1. **Start with Foundation and Python for AI:** Learners build the core AI concepts and systems view alongside practical coding — data fundamentals, NLP with NLTK, computer vision with OpenCV, Python programming, testing and developer workflow.
2. **Progress through Generative AI and Machine Learning:** Learners move into prompt engineering, LLM application design with LangChain and retrieval-augmented generation, then applied modelling with TensorFlow and PyTorch and containerised deployment with Docker.
3. **Advance to Data Visualization:** In the final phase, learners deliver business intelligence with Tableau, data storytelling and reporting automation, closing with a panel-assessed capstone that ships a production-ready AI application.

By following this structured pathway, students complete the full track within their graduation period, emerging as industry-ready professionals with a deployed, documented AI application to their name.

Track 4 – Junior Engineer – AI

Level 3 → Level 5 · 450 hours total · 48 practical lab sessions and one panel-assessed capstone

Program Modules

No.	Module	Hours	Indicative Level	Focus
01	Foundation	90 hrs	Level 3	Core AI concepts and systems
02	Generative AI	90 hrs	Level 4	Prompt engineering and model design
03	Python for AI	90 hrs	Level 3	Practical coding and libraries
04	Machine Learning	90 hrs	Level 4	Applied models and deployment
05	Data Viz	90 hrs	Level 5	BI dashboards and storytelling

Job Roles

Role	Modules	Primary Capability
AI Operations Assistant	01	AI concepts and systems, data preparation, NLP and vision fundamentals
Prompt Engineer	02	Prompt design, LLM application development, RAG, evaluation and cost control
Junior AI Developer	03, 04	Python engineering, APIs, applied modelling, containerised deployment
Automation Engineer	04, 05	Docker, CI/CD, monitoring, reporting and workflow automation
BI Analyst	05	Data modelling for reporting, Tableau dashboards, data storytelling

Certifications

Microsoft · AWS · Python Institute · Tableau

Vendor certification examinations are sat separately and are not included in programme fees. Preparation coverage is indicative and does not guarantee an examination pass.

Entry Requirements

Modules 01 and 03 are open entry; no prior programming experience is assumed. Module 02 requires completion of Module 01 or equivalent AI foundations. Modules 04 and 05 require completion of Modules 01 and 03, or demonstrable competence in Python and data handling.

Program Frameworks – Module 01: Foundation

90 hours · Core AI concepts and systems · 10 practical lab sessions

1.1 | AI Landscape & Systems Thinking 18 hrs

Module / Topic

- AI, ML and deep learning distinctions, the AI application lifecycle, system components, build versus buy decisions

Practical Lab Sessions

Lab 1: Decompose a live AI product into its data, model and serving components.

Lab 2: Draft a system design brief for a proposed AI feature

1.2 | Data Fundamentals & Preparation 20 hrs

Module / Topic

- Data types and structures, quality assessment, cleaning, labelling, splitting and versioning datasets

Practical Lab Sessions

Lab 3: Assess and clean a raw dataset; document every quality issue and its treatment.

Lab 4: Build a labelled training set with a reproducible train/validation/test split

1.3 | NLP Fundamentals with NLTK 20 hrs

Module / Topic

- Tokenisation, stemming and lemmatisation, stop words, part-of-speech tagging, text classification basics

Practical Lab Sessions

Lab 5: Build an NLTK text-processing pipeline over a corpus of customer reviews.

Lab 6: Train and evaluate a simple text classifier on the processed corpus

1.4 | Computer Vision Fundamentals with OpenCV 20 hrs

Module / Topic

- Image representation, filtering and transformation, edge and contour detection, feature extraction, video frames

Practical Lab Sessions

Lab 7: Build an OpenCV pipeline for image preprocessing and contour detection.

Lab 8: Process a video stream frame by frame and extract object features

1.5 | AI Ethics & Responsible Systems 12 hrs

Module / Topic

- Bias and fairness, transparency, data protection obligations, responsible deployment and acceptable use

Practical Lab Sessions

Lab 9: Audit a model for bias across user segments and document the findings.

Lab 10: Write a responsible-use and data-handling statement for an AI feature

Program Frameworks – Module 02: Generative AI

90 hours · Prompt engineering and model design · 10 practical lab sessions

2.1 | Large Language Models & How They Work 18 hrs

Module / Topic

- Transformer architecture, tokens and context windows, temperature and sampling, model families and trade-offs

Practical Lab Sessions

Lab 1: Compare model outputs across temperature and context settings; log the effects.

Lab 2: Benchmark three models on the same task and select one with justification

2.2 | Prompt Engineering Techniques 22 hrs

Module / Topic

- Instruction design, few-shot examples, chain-of-thought prompting, structured output, system prompts, iteration

Practical Lab Sessions

Lab 3: Build a prompt library for a support use case using ChatGPT; version each iteration.

Lab 4: Engineer prompts that return validated structured JSON for downstream code

2.3 | Building LLM Applications with LangChain 24 hrs

Module / Topic

- Chains and prompt templates, memory, tool and function calling, agents, application structure

Practical Lab Sessions

Lab 5: Build a multi-step LangChain application with memory and prompt templates.

Lab 6: Add tool calling so the application can query an external data source

2.4 | Retrieval-Augmented Generation & Vector Search 16 hrs

Module / Topic

- Embeddings, vector stores, chunking strategy, retrieval quality, grounding answers in source documents

Practical Lab Sessions

Lab 7: Build a RAG pipeline over a document set and test retrieval quality.

Lab 8: Tune chunk size and retrieval depth; measure the effect on answer accuracy

2.5 | Evaluation, Safety & Cost Control 10 hrs

Module / Topic

- Evaluation sets and scoring, hallucination detection, guardrails, prompt injection awareness, token and cost management

Practical Lab Sessions

Lab 9: Build an evaluation set and score application outputs against it.

Lab 10: Add guardrails and measure token cost per request before and after optimisation

Program Frameworks – Module 03: Python for AI

90 hours · Practical coding and libraries · 10 practical lab sessions

3.1 | Python Programming Foundations 20 hrs

Module / Topic

- Variables, control flow, functions, data structures, error handling, file and virtual environment management

Practical Lab Sessions

Lab 1: Write Python scripts for file input/output with structured error handling.

Lab 2: Set up a virtual environment and package a reusable Python module

3.2 | Object-Oriented Design & Testing 18 hrs

Module / Topic

- Classes and inheritance, composition, design patterns for AI code, unit testing with pytest, test coverage

Practical Lab Sessions

Lab 3: Refactor a procedural script into a tested object-oriented module.

Lab 4: Write a pytest suite and raise coverage above an agreed threshold

3.3 | Data Libraries — NumPy & Pandas 20 hrs

Module / Topic

- Arrays and vectorised operations, DataFrames, indexing, grouping, merging, performance considerations

Practical Lab Sessions

Lab 5: Build a data transformation pipeline in Pandas over a multi-source dataset.

Lab 6: Optimise a slow loop into vectorised NumPy and benchmark the improvement

3.4 | Building APIs & Application Structure 18 hrs

Module / Topic

- REST principles, request and response handling, project layout, configuration and secrets, logging

Practical Lab Sessions

Lab 7: Build a REST API that exposes a data processing function as an endpoint.

Lab 8: Add configuration, logging and error responses to the API

3.5 | Version Control & Developer Workflow 14 hrs

Module / Topic

- Git branching, pull requests and code review, issue tracking, documentation, collaborative workflow

Practical Lab Sessions

Lab 9: Create a repository, branch, commit and raise a pull request for review.

Lab 10: Review a peer's pull request and document the project in a README

Program Frameworks – Module 04: Machine Learning

90 hours · Applied models and deployment · 10 practical lab sessions

4.1 | Supervised & Unsupervised Learning 20 hrs

Module / Topic

- Regression, classification, decision trees and ensembles, clustering, evaluation metrics, cross-validation

Practical Lab Sessions

Lab 1: Train and benchmark four classifiers on one dataset; report precision, recall and F1.

Lab 2: Cluster a customer dataset and validate the segments against business logic

4.2 | Deep Learning with TensorFlow & Keras 20 hrs

Module / Topic

- Perceptrons, activation functions, backpropagation, loss functions and optimisers, training loops, regularisation

Practical Lab Sessions

Lab 3: Build and train a feed-forward network in Keras; tune epochs and learning rate.

Lab 4: Apply dropout and early stopping; compare training and validation curves

4.3 | Neural Network Architectures with PyTorch 18 hrs

Module / Topic

- PyTorch tensors and autograd, convolutional networks, transfer learning, custom training loops

Practical Lab Sessions

Lab 5: Build a CNN image classifier in PyTorch and evaluate on a held-out set.

Lab 6: Fine-tune a pre-trained model using transfer learning and compare results

4.4 | Containerisation & Deployment with Docker 20 hrs

Module / Topic

- Docker images and containers, Dockerfiles, packaging a model service, registries, environment parity

Practical Lab Sessions

Lab 7: Containerise a trained model and expose it through an API endpoint.

Lab 8: Build, tag and push the image to a registry; run it from a clean environment

4.5 | Monitoring, Automation & CI/CD 12 hrs

Module / Topic

- Automated build and test pipelines, model versioning, performance monitoring, drift detection, alerting

Practical Lab Sessions

Lab 9: Build a CI/CD pipeline that tests, builds and redeploys the model container.

Lab 10: Add monitoring and a drift alert to the deployed service

Program Frameworks – Module 05: Data Viz

90 hours · BI dashboards and storytelling · 8 lab sessions and a panel-assessed capstone

5.1 | Data Modelling for Reporting 16 hrs

Module / Topic

- Star schema design, fact and dimension tables, joins and relationships, aggregation strategy, data preparation for BI

Practical Lab Sessions

- Lab 1:** Model a transactional dataset into a star schema ready for reporting.
Lab 2: Build calculated fields and aggregations against the model

5.2 | Tableau Dashboard Development 24 hrs

Module / Topic

- Tableau data sources, worksheets and dashboards, filters and parameters, actions and drill-down, publishing

Practical Lab Sessions

- Lab 3:** Build a multi-view Tableau dashboard with interactive filters and parameters.
Lab 4: Add dashboard actions and drill-through, then publish for stakeholder access

5.3 | Visual Design & Data Storytelling 16 hrs

Module / Topic

- Chart selection, visual hierarchy, colour and accessibility, narrative structure, presenting to non-technical audiences

Practical Lab Sessions

- Lab 5:** Redesign a poor dashboard against visual design principles and justify each change.
Lab 6: Present a data story to a peer panel and handle stakeholder questions

5.4 | Automated Reporting & Workflow Automation 16 hrs

Module / Topic

- Scheduled refreshes, automated report generation in Python, alerting on thresholds, distributing outputs

Practical Lab Sessions

- Lab 7:** Automate a recurring report in Python and schedule its generation.
Lab 8: Add threshold-based alerting and automated distribution to stakeholders

5.5 | Capstone: Production-Ready AI Application 18 hrs

Module / Topic

- Build, deploy, document and present a complete AI application

Capstone Lab: Full project

Select a problem, prepare the data, build and evaluate the model or LLM application, expose it through an API, containerise and deploy it, deliver a Tableau dashboard over the outputs, write technical documentation and present to panel

Track 4 Toolkit – Core Tools & Technologies

Students graduate fluent in the full AI engineering stack — from generative AI and prompt design to containerised deployment and business intelligence.

Category	Tools / Platforms
Core Engineering	Python
Deep Learning	TensorFlow · PyTorch
Generative AI	ChatGPT · LangChain
NLP & Computer Vision	NLTK · OpenCV
Deployment	Docker
Business Intelligence	Tableau

Where Each Tool Is Taught

Module	Tools Introduced	Sub-Modules
01 — Foundation	NLTK, OpenCV	1.3 NLP Fundamentals with NLTK; 1.4 Computer Vision Fundamentals with OpenCV
02 — Generative AI	ChatGPT, LangChain	2.2 Prompt Engineering Techniques; 2.3 Building LLM Applications with LangChain; 2.4 RAG & Vector Search
03 — Python for AI	Python, NumPy, Pandas, pytest, Git	3.1 Programming Foundations; 3.2 OOP & Testing; 3.3 Data Libraries; 3.4 APIs; 3.5 Developer Workflow
04 — Machine Learning	TensorFlow, Keras, PyTorch, Docker	4.2 Deep Learning with TensorFlow & Keras; 4.3 Neural Networks with PyTorch; 4.4 Containerisation with Docker
05 — Data Viz	Tableau, Python	5.2 Tableau Dashboard Development; 5.4 Automated Reporting; 5.5 Capstone

Lab Environments

All practical sessions run in EduBlends cloud lab environments with GPU-backed instances for the deep learning sub-modules, container runtimes for the deployment work, and licensed Tableau and LLM API access for the generative AI and business intelligence modules.

Program Experience



Foundation

AI Systems · NLTK · OpenCV



Generative AI

ChatGPT · LangChain · RAG



Python Engineering

OOP · pytest · APIs · Git



Machine Learning

TensorFlow · Keras · PyTorch



Deployment & Automation

Docker · CI/CD · Monitoring



Business Intelligence

Tableau · Storytelling · Reporting

Job Assistant
Upskilling and the Re-skilling
Entrepreneurship transition

The Junior Engineer – AI track spans five modules and 450 hours, delivered through 48 structured virtual lab sessions and a panel-assessed capstone project. Learners progress from core AI concepts, NLP and computer vision fundamentals in Module 01, through prompt engineering and LLM application design in Module 02, Python engineering and API development in Module 03, applied modelling and containerised deployment in Module 04, and business intelligence and reporting automation in Module 05. Every topic is reinforced with real datasets, guided exercises and defined practical activities that mirror live industry workflows, so that graduates leave with a deployed, documented AI application and a portfolio-grade, role-aligned skill set.

Expected outcomes



Advanced Industrial Internship Certifications

Differentiate yourself from your peers by earning the industrially recognized Advanced industrial internship Certification



Students Blending Team

EduBlends blends the students for the industry-ready



For the Industrial, By the Industry

Learn and apply concepts on industry projects from industry, along with personalized industry mentorship



Industry Integration Layer

This program is designed with integrated industry collaboration, where enterprise partners contribute to curriculum alignment, real-world problem statements, and internship pathways.



Cloud Lab Facilities

Cloud lab hours for industrial problems, with GPU-backed and containerised environments for deep learning and deployment work



360 Degree Career Support — Entrepreneurial Program

Idea-to-Enterprise Catalyst by EduBlends Academy is a structured entrepreneurial program that guides innovators from ideation to execution, helping them build and scale tech-driven businesses such as AI applications, automation platforms and SaaS solutions.



Personalized Mentorship

Get unparalleled personalized mentorship and doubt resolution from industrialists and academicians.

Sample Weekly Program Planner

	4-5 hours	Live interaction with the programme learning facilitator
	1-2 hours	Recorded video lecture with faculty
	1 hour	Group discussion with industrial mentor and academic instructor
	4-5 hours	Cloud lab practice exercises and coding assignments
	2 hours	Rigorous, graded assignments to apply and reinforce the material
	12-15 hours	Total weekly effort

Who Is This Program For?

Career Launchers	Modules 01 and 03 are designed for students and early-career professionals with no prior programming background who want a structured entry into AI engineering and software development.
Career Builders	Module 02 suits developers, analysts and technical staff who want to move into generative AI and prompt engineering, one of the fastest-growing specialisms in the market.
Career Switchers	Module 04 serves mid-career professionals working outside engineering who want credible, hands-on machine learning and deployment capability before making a career change.
Specialists & Founders	Module 05 is for learners who have completed the earlier modules, or who bring equivalent experience, and want to move into business intelligence and automation roles — or to ship an AI product through the entrepreneurial programme.

Progressive Learning Pathway: Our curriculum is structured to provide a seamless learning experience, starting from core AI concepts and Python engineering through to production deployment, automation and business intelligence.

- **Modules 01 and 03 — Foundation and Python for AI** for 2nd-year graduate students, providing the AI systems view and the practical coding skills to begin the journey
- **Modules 02 and 04 — Generative AI and Machine Learning** for 3rd-year students who have completed the foundations, and for individuals looking to upskill into prompt engineering, applied modelling and deployment
- **Module 05 — Data Viz** for students who have finished the earlier modules, and experienced individuals transitioning into business intelligence, automation or entrepreneurship

Programs Key Features

Why Choose Our Courses?

Cutting-Edge Cloud Lab: Gain hands-on experience with our cloud lab, offering GPU-backed computational power and container runtimes for real-world, industry-level AI engineering projects.

Industrial Internships & Expert Mentorship: Work on live industry projects, receive guidance from practising engineers, and get the support you need for your career or entrepreneurial journey.

Personalized Instructor Support: Learn from experienced instructors committed to your growth, whether you're a beginner in Module 01 or shipping a production AI application in the capstone.

	Cloud Lab Access	Industry-Integrated Internship	Live Mentorship by Industry Experts	Entrepreneurship Support
Coursera				
Udemy				
UpGrad Online				
Scaler Academy				
Simplilearn				
Unacademy				
EduBlends Academy	✓	✓	✓	✓

Comparison rows left intentionally blank pending verification. Competitor feature claims must be sourced, dated and evidenced before publication.