



राष्ट्रीय इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी संस्थान तुरपति
National Institute of Electronics & Information Technology, Tirupati

Course Brochure

Foundation of Artificial Intelligence Technology

September 2025

Course Description

The Foundation of Artificial Intelligence Technology course is designed to introduce learners to core AI concepts, techniques, and tools using Python. Participants will explore key areas such as machine learning, deep learning (ANN & CNN), natural language processing (NLP), and computer vision. The course includes hands-on experience with libraries like TensorFlow, Keras, NLTK, and OpenCV, focusing on real-world applications. Learners will also understand data preprocessing, feature engineering, and AI model deployment on cloud platforms. This foundational program aims to build confidence and job-ready skills for roles in AI and data science.

Learn From India's Oldest Technical Institute, NIELIT

National Institute of Electronics & Information Technology (NIELIT) is one of the leading institutes in the field of Information Technology, Electronics, and related areas. Since its inception, the Institute has played a key role in providing skilled manpower, technical expertise, and training to support the growth of the IT and electronics sectors in the country, while also contributing to research and development.

While Gaining New-Age Skills at NIELIT

National Institute of Electronics & Information Technology (NIELIT) Tirupati is a premier institute dedicated to skill development, training, and capacity building in the areas of Information Technology, Electronics, and related fields. With a strong focus on industry-oriented training, NIELIT Tirupati equips students and professionals with the latest technical skills required in today's digital era. Learners are guided and mentored by experienced faculty and experts, ensuring quality education and better career opportunities in government, industry, and research organizations.

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What's This Program About?

The AI Revolution Is Here — Are You Ready to Be Part of It?

Artificial Intelligence isn't just shaping the future — it's redefining how industries operate today. From data-driven insights to intelligent automation, AI technologies are transforming every sector. The question is: Are you equipped with the skills to lead this change?

That's where NIELIT's "Foundation of Artificial Intelligence Technology" program steps in.

Offered by the National Institute of Electronics & Information Technology (NIELIT), Tirupati, this course empowers learners to master essential AI concepts through a blend of theory and practical learning.

Aligned with Government of India's skill development vision, the program ensures:

Hands-on expertise with Python-based AI tools, covering Machine Learning, Deep Learning (ANN & CNN), Natural Language Processing (NLP), and Computer Vision.

Real-world experience through practical projects using TensorFlow, Keras, NLTK, and OpenCV.

Job-oriented learning designed for students, professionals, educators, and entrepreneurs aspiring for careers in AI and Data Science.

No prerequisites required — just curiosity and commitment to learn.

Affordable fee structure: ₹2000 for general candidates and free for SC/ST participants.

Flexible blended learning mode, with expert-led sessions and guided mentorship.

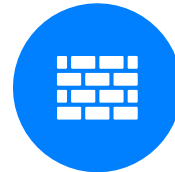
In today's data-driven world, having basic IT knowledge isn't enough — you need AI skills that set you apart. Gain the confidence, credibility, and capability to build a career at the forefront of innovation with the NIELIT Foundation of Artificial Intelligence Technology course.

Why Should You Opt for This Program?

Here's what you can expect when you choose the Foundation of Artificial Intelligence Technology



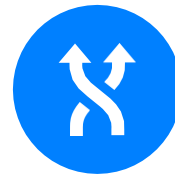
Government-recognised AI program under MeitY, built to match national skill standards and real-world IT industry demands.



Learn core Artificial Intelligence skills including ML, DL, NLP, CV, and AI development using Python with tools like TensorFlow, Keras, NLTK,



Hands-on practice through lab sessions, practicals, and a project to apply your learning.



Get hands-on exposure to cutting-edge AI technologies — including Machine Learning, Deep Learning, NLP, Computer Vision, and cloud-based AI deployment.



Build career-ready competencies for roles such as AI Developer, Machine Learning Engineer, Data Analyst, Computer Vision Specialist, or NLP Practitioner.



Certification by NIELIT, an autonomous scientific society under the Ministry of Electronics & IT, Government of India – widely recognised for employment.

Curriculum Outline

Topics

Introduction to Artificial Intelligence

Python Programming Fundamentals

Introduction to Machine Learning Concepts

Supervised and Unsupervised Learning Techniques

Deep Learning Basics (ANN & CNN)

Working with AI Libraries – Tensor Flow, Keras

Natural Language Processing (NLP) Fundamentals

Text Analytics using NLTK

Data Handling and Preprocessing

Computer Vision and Image Processing using OpenCV

Ethical and Responsible AI Practices

AI Applications in Real-world Scenarios

Data Visualization and Feature Engineering

Practical Exercises using Python Notebooks

Industry Tools for AI and Data Science

Case Studies & Capstone Project

Final Project Evaluation & Certification

Learn through Practicals

The course provides extensive hands-on sessions where you will apply theoretical concepts through coding exercises, experiments, and real-world projects — helping you gain practical AI and data science experience.

Python Programming for AI

Gain proficiency in Python programming by working on algorithms, flowcharts, data structures, and functions. Learn to manipulate data, preprocess datasets, and implement machine learning workflows using NumPy, Pandas and Keras

Machine Learning & Deep Learning

Get hands-on experience building Supervised and Unsupervised Learning models. Train and evaluate Artificial Neural Networks (ANN) and Convolutional Neural Networks (CNN) to solve classification and prediction problems.

Natural Language Processing (NLP)

Apply Python and NLTK to analyze, process, and interpret text data. Work on tasks like text classification, tokenization, and sentiment analysis to understand how AI understands language.

Computer Vision

Explore image processing and object detection using OpenCV. Learn to create visual recognition systems capable of detecting and classifying images in real-world scenarios.

Capstone Project

Work on a real-life AI project that integrates machine learning, deep learning, and NLP concepts. This project builds your problem-solving, analytical, and technical presentation skills — preparing you for professional AI roles

Who Can Choose This Program?

The NIELIT 'Foundation of Artificial Intelligence Technology' program is suitable for:

- ✓ Students who have passed Grade 10 and are pursuing continuous schooling
- ✓ Learners who have completed Grade 8 with ITI (NTC) or 3 years of relevant IT experience
- ✓ Individuals interested in AI, Python Programming, Machine Learning, and Deep Learning
- ✓ Professionals or diploma holders in IT/Computer Science seeking to upskill in Artificial Intelligence
 - ✓ Anyone aspiring to build a career in AI Development, Data Science, or emerging digital technologies

What Will You Gain?

Here's how this program will transform your career in tech 🚀:

🌟 Stand Out with a Government-Recognised Certification



Get certified by NIELIT under the prestigious DOEACC scheme (NSQF Level 3.5) qualification that opens doors in both government and private sectors.

🤖 Build Intelligent Solutions, Not Just Programs

Dive into the world of Artificial Intelligence — learn to design, train, and deploy smart models using Python, TensorFlow, and Keras. Understand how machines learn, predict, and make data-driven decisions.



🐍 Code Smarter with Python for AI



Master Python, the most in-demand language for AI and Data Science. From data preprocessing and feature engineering to implementing Machine Learning and Deep Learning models — code smarter, not harder.

🧠 Explore Advanced AI Domains

Get hands-on exposure to Machine Learning, Deep Learning (ANN & CNN), Natural Language Processing (NLP), and Computer Vision. Gain practical experience with libraries like NLTK.



🔗 Build Your Portfolio with a Real-Life AI Project

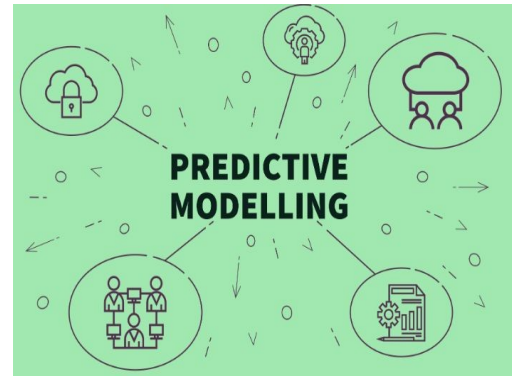


Work on a capstone project that demonstrates your complete AI skillset — from data analysis to model development and deployment — boosting your confidence and employability in the AI-driven job market.

PROJECTS

Predictive Models

- Stock Price Predictor
- Weather Forecasting
- Student Performance Predictor

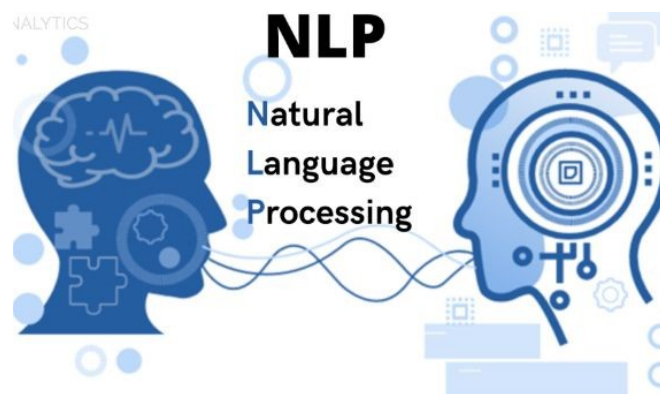


Computer Vision

- Handwritten Digit Recognition
- Face Detection App
- Object Recognition

Natural Language Processing

- FAQ Chatbot
- Sentiment Analysis Tool
- Text Summarizer



Games & Automation

- Tic-Tac-Toe AI.
- Rock-Paper-Scissors AI.
- Automatic Email Classifier.

Sample Certificate

Once you're done with the complete course you will receive a certificate from NIELIT

Digital India
Power To Empower

रा.इ.सू.प्रौ.सं
NIELIT

Skill India
वीक्षण भारत - कुशल भारत

राष्ट्रीय इलेक्ट्रॉनिक्स एवं सूचना प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF ELECTRONICS AND INFORMATION TECHNOLOGY
(इलेक्ट्रॉनिक्स और सूचना प्रौद्योगिकी मंत्रालय, भारत सरकार की एक स्वायत्त वैज्ञानिक संस्था)
(An Autonomous Scientific Society of Ministry of Electronics and Information Technology, Government of India)

प्रमाणपत्र
Certificate

कम संख्या / Serial No : _____
एनएसव्यूएफ स्तर / NSQF Level : 4
पाठ्यक्रम नाम / Course Name : E052: Foundation course in Internet of Things (IoT)

यह प्रमाणित किया जाता है कि उपरोक्त पाठ्यक्रम के लिए निम्नलिखित अभ्यर्थी / This is to certify that for above mentioned course, the candidate with details as under;

नाम / Name	: _____
अनुक्रमांक / Roll No	: XXXXXX
पंजीकरण क्रमांक / Registration No	: _____ 5
माता का नाम / Mother's Name	: _____
पिता का नाम / Father's Name	: E _____
अभिभावक का नाम / Guardian's Name	: XXXXXX
संस्थान का नाम / Name of the Institute	: _____ 3:-NIELIT I

ने सभी अनिवार्य सैद्धांतिक, प्रायोगिक एवं परियोजनाओं (जो भी लागू हों) में निम्नलिखित विवरण के साथ सफलतापूर्वक अर्हता प्राप्त की है / has successfully qualified all the mandatory theory papers, practicals and projects (which ever applicable) with following details;

ग्रेड / Grade B

LEGEND OF GRADES: S >=85%, A >=75% and <85%, B >=65% and <75%, C >=55% and <65%, D >=50% and <55%

संदिग्ध / N
दिनांक / Dated 2 _____

***This is a computer generated digitally signed certificate issued as per the particulars filed by the candidate.
<http://www.nielit.gov.in> [/NIELITIndia](https://www.facebook.com/NIELITIndia) [@NIELITIndia](https://www.instagram.com/NIELITIndia) [/NIELITIndia](https://www.youtube.com/channel/UCNIELITIndia) [/school/NIELITIndia](https://www.linkedin.com/company/school/NIELITIndia)

*The above shows the sample certificate format.

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