

# National Institute of Electronics and Information Technology

Ministry of Electronics & Information Technology  
Government of India



Gurukul of Technology

An premier institution established in 1978 to provide professional services in the areas of Information, Electronics & Communication Technology (IECT).

Artificial Intelligence is the intelligence exhibited by machines or software. The application areas of artificial intelligence are very vast and so this is a field of study which is gaining importance day

## Initiatives in area of Artificial Intelligence

- Joint Certification Programmes with IIT Ropar
- Industrial Training / Summer Training programmes
- Corporate Training
- Faculty Development Programmes
- Programmes for School Students
- Workshops/Webinars



## NIELIT Ropar



Birla Farms, BadaPhull, Rupnagar (Punjab) Ropar - 140001



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## Joint Certification with IIT Ropar

Under this umbrella MoU, NIELIT and IIT offered the following training programmes in Artificial Intelligence under joint certification:

- Industrial Training / Summer Training in Artificial Intelligence and Machine Learning since 2019.
- Corporate Training
- Joint Workshops
- NIELIT staff training by IIT's Indo-Taiwan Joint Research Centre on Artificial Intelligence and Introduction to Deep Learning for 5 days.

## Modules

1. Python Associate
2. Data Analyst
3. Artificial Intelligence & Machine Learning Expert
4. Neural Networks & Deep Learning Professional
5. Project Work

Testimonial @Youtube



Artificial Intelligence is the intelligence exhibited by machines or software. The application areas of artificial intelligence are very vast and so this is a field of study which is gaining importance day by day.

This branch of engineering emphasizes on creating intelligent machines that work and react like humans.



### **Course Highlights**

- ✓ Joint assessment and certification
- ✓ Lectures by faculty of NIELIT and IIT Ropar
- ✓ Major thrust on Hands-on training
- ✓ Course curriculum jointly designed by NIELIT and IIT Ropar
- ✓ Exposure & access to high standards of IIT & NIELIT's industry oriented approach

**Objective :** This joint certification programme is being undertaken in since 2019 and covers not only the Python Programming and its fundamental data structures, rather participants also learn how to program and work on data science libraries like Numpy and pandas, apply data analysis, data cleaning techniques, data visualization.

### **Course Outcome**

- ✓ Industry Ready
- ✓ In depth practical knowledge of AI and ML
- ✓ Enhance Employability
- ✓ Visit to IIT Ropar

The concept of Machine Learning, its models and implementation of its algorithms will be covered in detail. The deep learning algorithm in neural networks converting the domain of text and images will also be covered

**Eligibility :** 10+2 pass and pursuing B Tech / MSc / BSc (in any stream and any year) or MCA/ BCA (any year) or Diploma (IT/CS) pass or A Level or higher

**Fee :** Rs.22,000 +18% GST (Rs.25,960.00)

**Paid in two equal installments**

### ***Course Methodology***

- ✓ *Instructor-led live classes*
- ✓ *Instructor-led hands-on lab sessions.*
- ✓ *Assignments and Project Work*
- ✓ *Hosting projects*
- ✓ *Project Demonstration*

**Four module programme followed by Industry relevant Project :**

- ✓ **Python Associate**
- ✓ **Data Analyst**
- ✓ **AI and ML Expert**
- ✓ **Neural Networks and Deep Learning Professional**

***\* Limited Seats***





## Python Associate

- ✓ Programming with Python
- ✓ Jupyter notebook – Installation & function
- ✓ Python - Operators, Expressions and Python Statements
- ✓ Conditional Statements and Loops
- ✓ Sequence Data Types – List, Tuple, Set
- ✓ Input and Output in Python
- ✓ Dictionary, functions, Lambda Functions
- ✓ Modules and Functions in Python
- ✓ NumPy-arrays, indexing, slicing and iterating, reading csv into NumPy arrays

## Data Analyst

- ✓ Data Science Concepts
- ✓ Advanced concepts in Numpy
- ✓ Pandas – Data frame, Series, EDA using python
- ✓ Reading and Writing data from Excel/CSV formats into Pandas
- ✓ Merging, Concatenating, Group by and aggregation on data frames
- ✓ Statistical Concepts and Functions
- ✓ Time Series Analysis and its models
- ✓ Data visualization using Matplotlib
- ✓ Grids, axes, plots, colors, fonts and styling
- ✓ Types of plots - bar graphs, pie charts, histograms, Scatterplot
- ✓ HTML, CSS, Javascript, Bootstrap, Web development using Flask

## Artificial Intelligence & Machine Learning Expert

- ✓ Machine Learning - Categories of ML, Supervised, Unsupervised, Reinforcement, Semi Supervised.
- ✓ Regression, Classification, Naive Bayes, Support Vector Machines, Decision Trees, K-nearest Neighbors, Ensemble Methods of Classification, Machine Learning Evaluation Metrics, Overfitting and Under fitting, Cross Validation,
- ✓ Unsupervised - What is Clustering & its Use Cases, K-means Clustering, K-means algorithm, Hierarchical clustering, Hierarchical Clustering algorithm, High-dimensional clustering, Dimension Reduction-PCA
- ✓ Implementing different types of Supervised Learning algorithms
- ✓ Evaluating model output, Dimensionality Output

## Neural Networks & Deep Learning Professional

- ✓ Artificial Neural Networks – ANN structure, Feed Forward Neural network, Back Propagation.
- ✓ Deep Learning Concepts, Convolutional Neural Network (CNN), Neural Network using Tensorflow.
- ✓ Learning Algorithms, Error correction and Gradient Descent Rules, Perceptron Learning Algorithm. Keras and PyTorch elements
- ✓ Computer Vision – Face Recognition and Detection with OpenCV, Face Recognizers, Training data, Prediction.
- ✓ Natural Language Processing – Basics of text processing, Lexical processing, NLP tasks in syntax, semantics, and pragmatics. Applications like Automatic Summarization, Sentiment Analysis and Text Classification, NLTK toolkit

Generative AI, Transformer, LLM, Ethical AI and their applications

Registration link : <https://nltchd.info/trgcandregn/studAdmission>

The screenshot shows the NIELIT registration form. The header includes the NIELIT logo, the text 'राष्ट्रीय इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी संस्थान' (National Institute of Electronics & Information Technology), and the Ministry of Electronics & Information Technology, Government of India. The navigation bar has links for Home, Registration, Pay Fee Online, Student Query, and Student Feedback. The main content area is titled 'Registration Form' and contains several dropdown menus for selection: College / University, Category, Course Type, Spouse/Wards of NIELIT Employee?, Course Category, Course, and Father's Name. The 'Course Type' dropdown is open, showing options like 'Artificial Intelligence and Machine Learning with IIT Ropar' and 'Big Data Analytics with IIT Ropar'. The 'Course' dropdown is also open, showing 'Artificial Intelligence and Machine Learning with IIT Ropar (6 Months)' and 'Big Data Analytics (Online)'.

## sample certificate

The sample certificate is from NIELIT Chandigarh, an Autonomous Scientific Society of the Ministry of Electronics & Information Technology, Govt of India. It is awarded to Mr. Aadi Samra Shri Dinesh Sharma for completing a course of 26 week(s) duration from 11.01.2021 to 09.07.2021. The course is 'Artificial Intelligence and Machine Learning (Project: Car Re-sale Price Prediction)'. The student secured 90 marks out of 100 and has been awarded the grade 'sample'. The certificate also lists the course curriculum: 'Python Associate, Data Analyst, AI and ML Expert, Neural Networks and Deep Learning'. The certificate is signed by the Program Coordinator, IIT Ropar, and the Director, NIELIT Chandigarh. The date of issue is 06.08.2021. The roll number is P1128/13. The certificate includes a grading scheme: S - 80% and above, A- 70% to <80%, B- 60% to <70%, C- 50% to <60%, D- 40% to <50%.

## Faculty



Dr. Puneet Goyal,  
Associate Professor  
Dept. of Computer Science,  
IIT Ropar  
*For Image Processing*



Dr. Shweta Jain,  
Assistant Professor  
Dept. of Computer Science,  
IIT Ropar  
*For Unsupervised Learning*



Dr. Shashi Shekhar,  
Associate Prof.,  
Dept. of Computer Science,  
IIT Ropar  
*for Reinforcement Learning*



Dr. Somdev Kar,  
Associate Professor  
Dept. of Humanities &  
Social Sciences, IIT Ropar  
*For Natural Language  
Processing*



Dr. Arun  
Associate Professor  
Mathematics Dept.,  
IIT Ropar  
*for Mathematics and  
Statistics*



Dr. Jayaram Valluru  
Faculty, Chemical  
Engineering,  
IIT Ropar



Dr. Neeraj Goel  
Assistant Professor,  
Department of Computer  
Science and Engineering,  
IIT Ropar



Anita Budhiraja,  
Scientist – E,  
NIELIT Ropar  
9815988717



Dr. Sarwan Singh,  
Scientist – D  
NIELIT Ropar  
9815621657



# Testimonials



**रा.इ.सू.प्रौ.सं  
NIELIT**



**Anmol Nagpal**  
Jungleworks - clicklabs

"I am grateful for the excellent training in Artificial Intelligence and Machine Learning with IIT Ropar provided by NIELIT Ropar, which has led to my successful placement in a top company."




**रा.इ.सू.प्रौ.सं  
NIELIT**

**ARTIFICIAL INTELLIGENCE  
AND ML WITH IIT ROPAR**



"I am extremely thankful for the exceptional training in Artificial Intelligence and Machine Learning received from NIELIT Ropar, which played a crucial role in my placement at a reputable company."

**Harsimranjit Singh Mann**  
Hashmap Inc

*Testimonial*



**Thank you very much**

★★★★★

"I would like to extend my heartfelt gratitude to NIELIT Ropar for their exceptional training in Internet of Things (IoT) in collaboration with IIT Ropar. The insightful lectures delivered by the esteemed professors from IIT Ropar were instrumental in enhancing my understanding of IoT concepts and their practical applications. Thanks to their invaluable guidance and support, I am thrilled to have been placed at RIL (Reliance Industries Limited), a global leader in various industries, where I can leverage my IoT skills to drive innovation and contribute to the development of advanced technologies for a sustainable future."

**Ashutosh**  
RIL



**ABHINAV MAHAJAN**  
TECH MAHINDRA

"I am honored to express my heartfelt gratitude to NIELIT Ropar for their distinguished training in Artificial Intelligence and Machine Learning, which has been instrumental in securing a coveted position in a prestigious company."



## TESTIMONIAL



"I am immensely grateful to NIELIT Ropar for their remarkable guidance in Artificial Intelligence and Machine Learning. Thanks to their invaluable support, I have secured a rewarding position at UST, a renowned global technology company known for its cutting-edge solutions and client-centric approach."



**RAGHAV - UST**



**SAGAR GAIKWAD**



"I am immensely grateful to NIELIT Ropar for their comprehensive training in Blockchain Certified Professional. The course content and delivery by the expert faculty have equipped me with the necessary knowledge and skills in blockchain technology. Thanks to their guidance and support, I am delighted to have acquired the expertise required for blockchain implementation and have been placed in a prestigious company, where I can contribute to the advancement of this transformative technology."

**Blockchain Certified Professional  
CURRENTLY WORKING  
AT  
SANELO**



## TESTIMONIAL

"I extend my heartfelt gratitude to NIELIT Ropar for their exceptional training in Artificial Intelligence and Machine Learning. Thanks to their unwavering support, I am proud to have been placed at Tata Consultancy Services, a prestigious organization known for its commitment to innovation and excellence."

**Jagisha -  
Tata Consultancy Services**



## MY TESTIMONIAL

"I would like to express my sincere appreciation to NIELIT Ropar for their exceptional training in Artificial Intelligence and Machine Learning. Thanks to their guidance and support, I am thrilled to have been placed at Byju's, a leading ed-tech company renowned for revolutionizing the education industry."

**SIMRAN  
BYJUS**



## TESTIMONIAL

"The 6-month AIML course at NIELIT Ropar with IIT Ropar was an excellent learning experience. The well-structured curriculum, hands-on projects, and expert guidance helped me gain deep insights into machine learning, deep learning, and AI applications. This course has significantly improved my technical skills and career prospects. Highly recommended!"

— Priyanka  
Jan - July 23



Batch - July - Dec 23  
☆☆☆☆☆

## TESTIMONIAL

"Had a good learning experience at NIELIT. The instructors were helpful, and the sessions were well-organized. Got to learn a lot of practical stuff too."

Pawaninder Kaur



## Testimonial.



It was my great experience during Training at NIELIT. That was really kickstart for my career. Lots and lots of blessings and Thanks to my guides Dr. Anita and Dr. Sarwan Singh for such amazing guidance.

Jobanpreet Singh  
Batch - Jan - July 22



## — Dikshit Narayan TESTIMONIALS



"I had an enriching 6-month learning experience in the AIML course at NIELIT Ropar, in collaboration with IIT Ropar. The well-structured curriculum covered key AI and ML concepts, including machine learning, deep learning, NLP, computer vision, and data analytics. Hands-on projects, expert guidance, and research-based assignments provided valuable industry exposure and strengthened my technical skills. This course has greatly enhanced my AI expertise, and I highly recommend it to those looking to advance their careers in the field."



## Recent Classes at IIT



## Classes at IIT Ropar





## Placed Students (2021-24)



Jobanpreet Singh  
Erginous Technologies, Rajpura,  
Punjab



Abdurahamani Ssembuya  
Hamad International Airport



Prateek Mittal  
BirlaSoft Noida



Utkarsh Bharti  
Fore Solutions Pvt. Ltd.



Karanjot Singh  
Tech Mahindra Limited



Jaspreet Kaur  
Snakescripts Solutions LLP  
Mohali



Jaswinder Singh  
Senior Research Fellow at  
SLIET



Yogesh Bhatia  
Airbotix Tech.Pvt



Pranav Singhal  
(NIELIT Ropar)



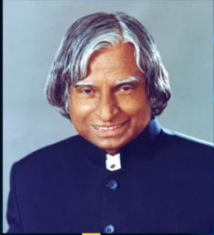
Kanwarpal Singh  
NIELIT Chandigarh

# Face Recognition System

using Deep Learning

Python provides face\_recognition API which is built through dlib's face recognition algorithms. This face\_recognition API allows us to implement face detection, real-time face tracking and face recognition applications.

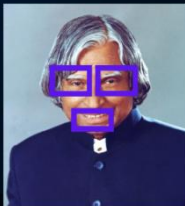
Test Image



Face Detection



Image Normalization



Feature extraction



Recognizer  
Predict



**NIELIT Ropar :**

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/NIELITChandigarh



Website: [www.nielit.gov.in/chandigarh/index.php](http://www.nielit.gov.in/chandigarh/index.php)