



eict
IIT Roorkee



E&ICT Academy, IIT Roorkee

Internship Certification Program

By E&ICT Academy, IIT Roorkee

AI and IoT



Why Choose Introduction to AI and IoT— for Your Career?

Artificial intelligence (AI) is at the front and center of the tech world today. This technology has proven beyond doubt that it's capable of transitioning the business sphere as well as our personal lives. We see it on our smartphones, with digital voice assistants like Siri and Alexa. We also see it in manufacturing, where manufacturers use AI systems to forecast when or if equipment will fail.

Yet that's just the tip of the iceberg. There are numerous ways AI has changed the game across different industries and daily livelihoods.

Internet of Things (IoT) makes our world as possible as connected together. Nowadays we almost have internet infrastructure wherever and we can use it whenever.

In a nutshell, IoT wants to connect all potential objects to interact with each other on the internet to provide secure, comfortable life for humans.



About IIT Roorkee



Indian Institute of Technology - Roorkee is among the foremost institutes of national importance in higher technological education and in engineering, basic and applied research. The Institute ranks amongst the best technological institutions in the world and has contributed to all sectors of technological development. It has also been considered a trend-setter in the area of education and research in the field of science, technology, and engineering.

About E&ICT Academy

Electronics & ICT Academy IIT Roorkee (E&ICT IITR) is an initiative supported by MeitY, Govt of India. EICT IIT Roorkee delivers FDPs and certification courses in online as well as offline mode. Our courses lay emphasis on bridging the gap between industry demand and academic approach to learning and provide a foundation to build your career in the industries related to the ICT sector. All our courses have projects with real-life problems to give industry insights into learning. We have assimilated academic as well as industry experts to formulate the most effective courses that help professionals, students and faculty to upgrade their skills without disrupting their regular schedule.

Achievements



In Engineering
Category of NIRF
Rankings 2020



In Overall Category of
NIRF Rankings 2020



Among the IITs in the
'Citations per Faculty'
parameter in QS World
University Rankings, 2021



Best university in India
by the Times Higher
Education (THE) World
University Rankings 2019

Who Is This Program For?



Students



Professional

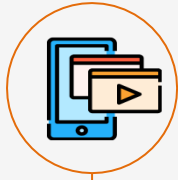


PassOut

Designed for Students/ Working Professionals, Fresh Graduates, Self-starters, Career transformers with essential work experience, wishing to switch tracks into data science



Program Highlights



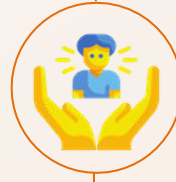
Live Instructor-Led Sessions



Code Reviews by Experts



Hands-on Live Projects



One-on-One with Industry Mentors



Hands-on Learning



Personalized Feedback on Assignments



Fundamentals to Advanced



Value added soft skills sessions



Assignments and Multiple-Choice Questions



Ask Expert Anything Sessions

Program Offerings

Class Content

- Content Co-created with Industry
- Real-world project
- Project reviews
- Project feedback from Expert

Student Services

- Technical mentor support
- Student community



Eligibility cum Scholarship Test

The aim of this scholarship is to offer support to aspirants. Test will be MCQ based. Selection will be based on the online test performance of the participants.

Scholarship Discount/Benefits:

Top 5 aspirants achieving eligible score will be provided scholarship discounts for program.



SCHOLARSHIP CUM ELIGIBILITY TEST INTRODUCTION TO AI AND IOT

BY

E&ICT Academy, IIT ROORKEE

Post Training Assistance

- Career Guidance Opportunities
- Long Term Internship Opportunity
- Long Term Mentorship
- Projects Support



Career Guidance Opportunities



Long Term Internship Opportunity



Long Term Mentorship



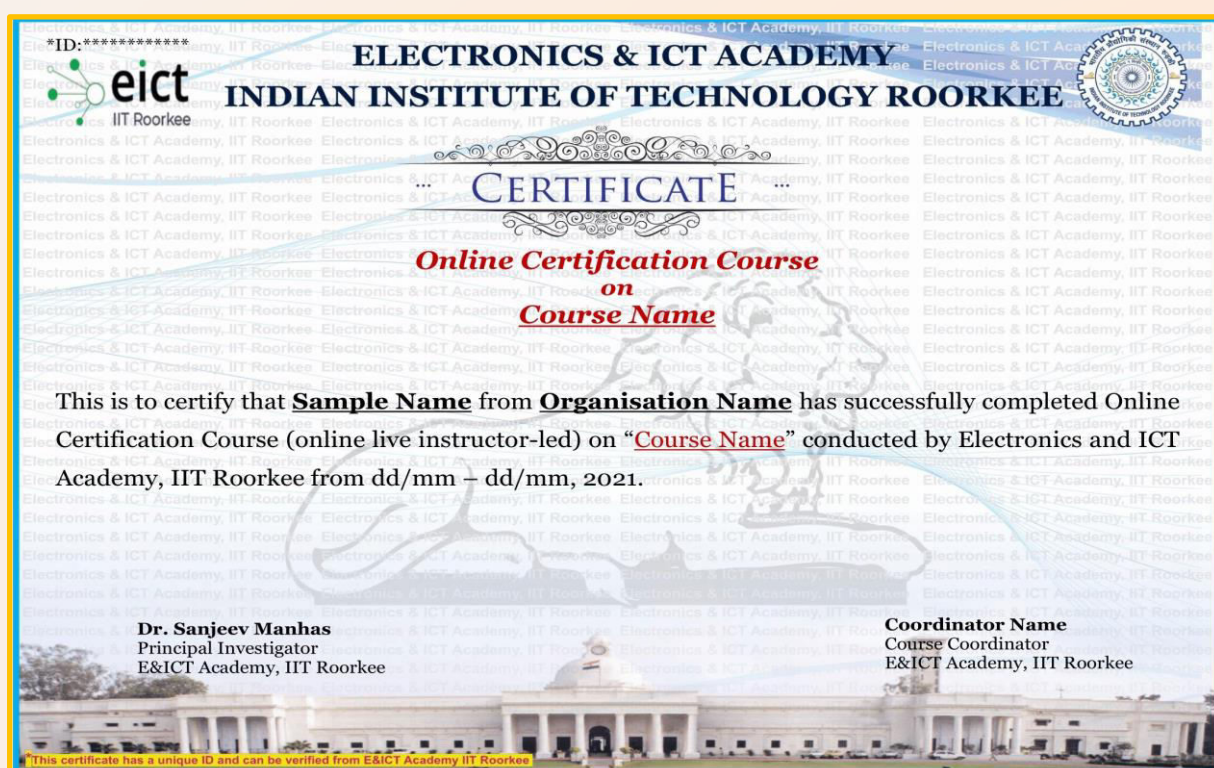
Projects Support

Program Benefits

- ❑ 45 Days Internship Certificate from E&ICT, IIT Roorkee
- ❑ Project Mentorship by IIT Roorkee Faculties & Research Scholars
- ❑ Project Guidance & Doubt Clearing Sessions by Industry Expert
- ❑ Expert Career Guidance from the Experts and Mentors
- ❑ Case Study and Project Driven Learning Methodology
- ❑ Access to Learning Material and Video Lectures
- ❑ Eligibility cum Scholarship Test with Scholarship Discount
- ❑ Award Distribution for Performances/Achievements in Program

Certification

- All successful participants will be provided with a certificate of completion by E&ICT Academy, IIT Roorkee.
- Students who do not complete the course / leave it midway will not be awarded any certificate.



Faculties and Course Advisors



Prof. Sanjeev Manhas

E&ICT Academy, IIT Roorkee

Principal Investigator

[Know More](#)



Prof. Meenakshi Rawat

Department of ECE, IIT Roorkee

Expert from Academia

[Know More](#)



Kaushalendra Singh Sisodia

Director at Uniconverge Technologies, IIT
Kanpur Alumni

Program Advisor

[Know More](#)



Rishabh Kumar

Uniconverge Technologies Pvt. Ltd.

Expert from Industry

[Know More](#)



Jitesh Kumar

Uniconverge Technologies Pvt. Ltd.

Expert from Industry

[Know More](#)

Program Content

❑ Introduction to Internet of Things

- State of the Art in IoT
- Structure of the Internet
- Product development Cycle
- Applications and impact of IoT on society

❑ C/C++ Programming for IoT Applications

- Basics of the C programming language
- Operators, expressions, Conditional Statements
- Input and Output Functions
- Delay function and Interrupt Handling

❑ Python Foundations

- Python Basics from Scratch
- Essential Python Libraries
- Best Coding Practices

❑ Data Wrangling

- Data Wrangling with Pandas
- Working with different file formats - txt, csv, json etc
- Working with data fetching apis
- Web Scraping for Data

❑ Statistics for Data Science

- Master the basics of inferential statistics and parameter estimation
- Use hypothesis testing to determine if a phenomenon is statistically significant
- Learn how correlation and regression can help identify useful features
- Build A/B split tests
- Conduct exploratory data analysis

Program Content

❑ Foundations of Machine Learning

- Common algorithms like linear regression, logistic regression, and statistical modeling
- Advanced algorithms like Decision Tree, Random Forest, gradient boosting, and K-means clustering
- Model selection, evaluation, and interpretation concepts like regularization, the Curse of Dimensionality, and cross-validation
- Supervised and unsupervised learning
- Tools: scikit-learn, XGBoost

❑ Introduction to Deep Learning

- Overview of Neural Networks, Backpropagation and foundational techniques
- Principles of Deep Neural Networks
- Engineering Frameworks: Keras, TensorFlow

❑ IoT Development Platforms

- Architecture of IoT development Board
- Installation and running led blinking program on board
- ADC and communication port details on board
- Hardware and software interrupts

❑ IoT Communication Protocols

- Basics of serial communications
- HTTP protocol
- MQTT protocol

❑ Introduction to IoT Architecture

Program Content

❑ IoT Server and Client Configurations

- Defining server and clients
- Defining access point and station
- Web server
- Point to Point communication
- Intranet and internet

❑ IoT Security



Test & Evaluation

The assessment for the theory & practical part is based on a knowledge bank of questions created by field experts and approved by E&ICT Academy.

To pass the qualification, every trainee should score a minimum of 50% cumulatively (Theory and Practical).

Assessment Comprises the Following Components:

- ☐ **Attendance and Punctuality Report**
- ☐ **Weekly Assignments (Theory - Hands-On)**
- ☐ **Weekly Tests (Basic-Advanced)**
- ☐ **Project**

- Synopsis Process Report
- Complete Project Report

Award Distribution for Performances/Achievements

Top 5 performers throughout the program will be acknowledged with various rewards



Tools and Technologies



ESP8266

INTERNET OF THINGS
IOT



NLTK
Natural Language Toolkit



 **PyTorch**



Course Details and Fees

Please find more information about the program and fees here:

Program	Phase	Duration	Program Fees	Total Fees
Introduction to AI and IOT	Internship	45 Days (50+Hrs)	22,000 INR	22,000 INR

Contact us at +91-8595486148, +91-9149130233

For Further Information Connect to

E&ICT Academy, IIT Roorkee

Email: eict@iitr.ac.in

Tel: +91-8595486148, +91-9149130233



Frequently Asked Questions

1. Who is organizing this program?

This is a program officially being organized by E&ICT Academy, IIT Roorkee.

2. What are the prerequisites to attend these training programs?

This program does not require any prerequisites. You will be taught everything from scratch including programming in python.

3. Which certificate will I get?

All successful participants will be provided with an Internship Certificate of Completion by E&ICT Academy, IIT Roorkee.

4. When will I receive confirmation of registration?

You will receive a Call confirmation within 24 hours & an Email confirming your seat after your payment is verified at our backend after last date of registration.

5. What are the benefits of Eligibility cum Scholarship Test?

The aim of this scholarship is to offer support to aspirants. Test will be MCQ based. Selection will be based on the online test performance of the participants.

Top 5 aspirants achieving eligible score will be provided scholarship discounts for program.

6. Explain about Award Distribution for Performances/Achievements?

Top 5 performers throughout the program will be acknowledged with various rewards.

7. What is Support Learning Mechanism of Program?

Live Instructor-Led Sessions

24X7 Access Study Materials (Session Videos, PDFs, PPTs)

Weekly Expert Talks About Use Cases

Online Practice Tests

Weekly Practice Exercises and Assignments

Module Based Projects

Mentorship

Career Guidance and Opportunities