Course Relevance:

This STC focuses on two programming languages, such as Java and Python. Both languages have object-oriented features. Therefore, the concept of object-oriented programming will be illustrated using Java and Python. Further, it discusses how it can be used in real life by a Software Engineer or a Data Science Engineer. This five-day short-term course is designed to provide an integrated foundation in Java programming and Artificial Intelligence & Machine Learning using Python. This course combines core software development skills with modern data-driven techniques. The program begins with Java fundamentals, including object-oriented programming concepts, control structures, classes, objects, and inheritance to build strong logical and structural thinking, then progresses to advanced topics such as interfaces, exception handling, collections, and file processing for efficient data management. Thereafter, the introduction to basic Python programming and Python-based AI/ML concepts, including data preprocessing, exploratory data analysis, and the implementation of basic machine learning algorithms using libraries such as NumPy, Pandas, and Scikit-learn. As the course advances, participants will work on handling datasets, applying supervised learning models, and understanding model evaluation techniques, culminating in a mini-project with Python-based machine learning workflows, thereby enabling learners to develop end-to-end problem-solving skills, bridge the gap between programming and intelligent systems, and prepare for advanced research and industry applications in AI and ML. This course is highly relevant for researchers, academicians, and professionals who aspire to advance in Java and Python for AI/ML.

Course Objectives:

- To learn Object-Oriented programming using Java and Python.
- To apply AI/ML in real-world applications using Python.
- To solve the problem of Classification using machine learning and deep learning.

Topics to be Covered:

- Introduction to Object–Oriented Programming
- Introduction to JAVA programming, Classes, and Objects
- Inheritance and Interfaces for Java
- Exception Handling and Java Collection Framework
- File Handling and Streams for Java
- Core Data Structures for AI/ML using Python
- Linear Algebra, Probability and Statistics for ML
- Data Handling and Pre-processing
- Regression and Classification for Supervised Learning
- Data Hiding and Watermarking
- Unsupervised Learning and Dimensionality Reduction
- Deep Learning Foundations and Advanced AI
- Implementation of Mini-Project for Deployment

Speakers:

- Dr. Ratnadip Adhikari, Tiger Analytics
- Prof. Pankaj Kumar Sa, NIT Rourkela
- Prof. Dinesh Kumar Vishwakarma, DTU Delhi
- Prof. Amit Kumar Singh, NIT Patna
- Prof. Anup Nandy, NIT Rourkela
- Prof. Rahul Katarya, DTU Delhi
- Prof. Sibarama Panigrahi, NIT Rourkela
- Prof. Sambit Bakshi, NIT Rourkela
- Prof. Bidyut Kumar Patra, IIT-BHU, Varanasi
- Prof. Vibhor Kant, BHU Varanasi
- Prof. Asha Murugan, NIT Rourkela
- Prof. Sanjeev Patel, NIT Rourkela

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Azadi Ka Amrit Mahotsav

Five Day STC
on
Java Programming and Python for Real-Life Applications of AI (JPP-RAA)

Hybrid Mode
(Online and Offline)
8th – 12th July 2026

Patron
Prof. K. Umamaheshwar Rao, Director NIT Rourkela

Chairman
Prof. B. D. Sahoo, HoD(CSE)

Convenor
Dr. Sanjeev Patel
Dr. Arun Kumar

Organized By
Department of Computer Science and Engineering,
National Institute of Technology Rourkela
Rourkela-769008, Odisha, India

Technically Co-Sponsored by:

IEEE ROURKELA SUBSECTION

IEEE KOLKATA SECTION

About National Institute of Technology (NIT) Rourkela

National Institute of Technology (NIT), Rourkela was founded as Regional Engineering College, Rourkela in 1961. It is a prestigious institute with a reputation for excellence at both undergraduate and postgraduate levels, fostering the spirit of national integration among the students, a close interaction with industry and a strong emphasis on research, both basic and applied. The nearest airports are Rourkela, Jharsuguda, and Ranchi. In India, it was ranked 13 among engineering colleges by NIRF in 2025. Please visit www.nitrkl.ac.in to know more about NIT Rourkela.

About Department of Computer Science and Engineering

The department was established with the vision to become a nationally acclaimed department of higher learning that will serve as a source of knowledge and expertise for the society. The department offers various UG and PG programmes with the mission to provide high-quality education that prepares the graduates for success in their professional practice and advance studies. The department also offers M. Tech in Computer Science, Information Security and Software Engineering; and Ph. D. for regular as well as sponsored candidates.

The faculties of CS department are handling several externally funded research projects. Please visit www.nitrkl.ac.in/CS to know more about the Department of CSE.

Important Dates:

Registration Deadline for STC	**5th July 2026**
Confirmation to Participants of STC	6th July 2026
Commencement of STC Course	8th July 2026

Target Participants:

STC aims to train the participants who are interested in learning Object-Oriented programming using Java and Python. Further, how it can be applied in real-life applications, such as designing a questionnaire, Quiz, and the classification of disease using AI/ML. The target audiences are UG/PG/PhD students. The young faculty and industry professionals are also welcome.

Convenor

Dr. Sanjeev Patel
Assistant Professor Grade-I
Department of CSE, NIT Rourkela
Email: patels@nitrkl.ac.in
Mobile no.: +91-9873814970

Student Volunteer

Mr. Ranjan Kumar
Email: nmcb.nitrkl@gmail.com
Mobile no.: +91-6200647822(WhatsApp)

Registration Details:

Registration fees (non-refundable) include Registration Kit, Refreshment, Tea and Snacks and 18% GST.

Registration Type	Fees
Students	INR 2360
Young Faculty Members	INR 2360
Scientist from R&D /Industry Person	INR 4720

Lodging, boarding, lunch and dinner facility in Hostel/Guest House can be availed on separate payment basis and based on availability.

Bank Account Details for Paying Registration Fee:

The registration fee is to be deposited in the following bank account:

Account Name	CONTINUING EDUCATION NIT ROURKELA
Account No.	10138951784
Bank	State Bank of India
Branch	NIT Campus Rourkela (02109)
IFSC Code	SBIN0002109
UPI ID	01389517841@sbi

Registration Form:

To complete online registration, the participants need to fill the following google form:

https://forms.gle/FFeN8RCeAWa3H2tp6

STC Certificates *will be provided to the registered participants upon successfull completion of the course.*

Contact and Queries: *Please send your queries directly to the Student Volunteer.*