

## Course Relevance

Intelligent Transportation Systems (ITS) play a crucial role in the development and implementation of smart cities. As urban areas become more populated and face increasing challenges related to congestion, pollution, and safety, integrating intelligent transportation solutions becomes essential. As the field evolves rapidly, staying updated with the latest advancements and technologies is crucial for professionals working in this area. This course provides a fundamental understanding of transportation systems, including the fundamentals of communication technologies, the design of communication units and modules, and the operation of transportation infrastructure. It lays the groundwork for more advanced courses in intelligent transportation systems like the implementation of 5G/6G technologies, UAV-assisted VANET, implication of ChatGPT for intelligent transportation, and hands-on advanced simulation tools for performance analysis. The course delves into the concept of sustainable transportation and the contribution of ITS in mitigating the environmental impact of urban mobility. With the increasing integration of technology in transportation systems, security becomes crucial. This course also explores the challenges and strategies for securing intelligent transportation networks. Integrating ChatGPT (or similar conversational AI models) into ITS can offer several benefits and enhance the overall user experience.

## Course Objectives

- To provide an comprehensive overview of Intelligent Transportation Systems for smart cities.
- To showcase cutting-edge ITS communication technologies like information fusion, V2X communication, 5G and 6G technologies, machine learning, UAV assistance, security and privacy, etc.
- To introduce advanced simulation tools for performance analysis of transportation system for smart cities.



## Topics to be Covered

- Fundamentals of Communication system.
- Introduction to Intelligent Transportation Systems.
- Basics of Vehicular Ad-Hoc Network (VANET) covering On-Board Unit (OBU) and Road Side Unit (RSU).
- Information fusion.
- V2X communication.
- Resource allocation in ITS.
- Use of 5G and 6G technology for transportation.
- Machine learning and Deep Learning Models for ITS.
- UAV-Assisted VANET.
- Security and privacy in ITS.
- Advanced simulation tools for performance analysis of transportation systems.
- ChatGPT for intelligent transportation.



## Keynote Speakers

- Prof. Peter Han Joo Chong, AUT, New Zealand
- Ms. Jaishree Jindel, Transport Specialist, The World Bank
- Dr. Amrith Dhananjayan, Cofounder – impress.ai, Singapore
- Prof. G. G. Md. Nawaz Ali, Bradley University, South Carolina, United States
- Mr. Akkireddy Challa, Datafoundry, Hyderabad
- Prof. Alok Kumar Kushwaha, GGD, Bilaspur
- Prof. Debiprasad P. Acharya, NIT Rourkela
- Prof. Santos Kumar Das, NIT Rourkela
- Prof. Vijay Bhaskar Semwal, MNIT Bhopal
- Prof. Alekha Mishra, NIT Jamshedpur
- Prof. Upendra Kumar Sahoo, NIT Rourkela
- Prof. Sourav Kanti Addya, NIT Suratkal
- Prof. Pabitra Mohan Khilar, NIT Rourkela
- Dr. Shashank Srivastava, MNNIT Allahabad

## Five-Day Short-Term Course on Intelligent Transportation Systems for Smart Cities

**Hybrid Mode  
(Online and Offline)**  
8th - 12th September 2023



**Coordinators:**  
**Dr. Arun Kumar**  
**Dr. Bibhudatta Sahoo**



**DEPARTMENT OF COMPUTER SCIENCE &  
ENGINEERING,  
NATIONAL INSTITUTE OF TECHNOLOGY  
ROURKELA**

## About NIT Rourkela



National Institute of Technology (NIT) Rourkela is an institution of national importance funded by the Ministry of Education. NIT Rourkela was established as Regional Engineering College (REC) on August 15, 1961. NIT Rourkela was ranked 601-800 in the world by the Times Higher Education World University Rankings of 2018 and 126th in Asia. In India, it was ranked 16 among engineering colleges by the National Institutional Ranking Framework (NIRF) in 2023. For details about the institute please visit us at [www.nitrkl.ac.in](http://www.nitrkl.ac.in).

## Tourist Places Nearby



Khandadhar Waterfall



Pitamahal Dam



Hanuman Vatika



Vedvyas Temple



Mandira Dam

## About Department of Computer Science and Engineering

The department was established with the vision to prepare its students for professional employment and graduate education through study and implementation of the fundamental principles of theory, abstraction, and software design, while at the same time presenting the ethical and social issues associated with computer science.

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 advanced 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. Please visit <https://website.nitrkl.ac.in/CS/> to know more about the department of CSE.

### Important Dates

Registration Deadline	2nd September 2023
Confirmation to participants by email	4th September 2023
Commencement of Course	8th September 2023

### Coordinators:

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## Target Participants

The short-term course is of immense interest for UG/ PG students, research scholars/professionals, staff/ faculty members and industry professionals working in the area of Intelligent Transportation Systems for Smart Cities. The participants having Computer Science and Engineering, Electronics and Communication Engineering, and Electrical Engineering background will be benefitted with this short-term course.

### Registration Details

- The registration fee for various participants for attending the short-term course is given below:
- The students/faculty members of NIT Rourkela are exempted from the payment of registration fee.

#### Registration Details (Fees Non-Refundable)

Registration Type	Fees
Students	INR 500
Faculty Members	INR 1000
Scientist from R & D Organization/Industry Persons	INR 2000

### Bank Account Details for Registration

Account Name	CONTINUING EDUCATION NIT ROURKELA
Account No.	10138951784
Bank	State Bank of India
Branch	NIT Campus Rourkela (02109)
IFS Code	SBIN0002109

### Registration Form:

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

<https://forms.gle/hQPZZFqzfV8dpN546>

E-certificates will be provided to the registered participants upon successfully completing the course.

Contact and Queries: Please send your queries directly to the student coordinator, email:

[stc.itssc.2023@gmail.com](mailto:stc.itssc.2023@gmail.com), [lopu1007@gmail.com](mailto:lopu1007@gmail.com).