KEY SPEAKERS:

- **Dr. Kushal Tuckley**
  Chairman and Director R&D, AGV Systems PVT. LTD.
  Ex-Head SPNE, SAMEER (R&D of DIT, Govt of India)
- **Dr. Debaprasad Barad**
  Research and Development Engineering Manager, Astra Microwave Products LTD.
- **Dr. Ashik Paul**
  Department of Radio Physics and Electronics, University of Calcutta, (Key Topic : ST Radar and Doppler Weather Radar)

Important Highlights:

- ❑ Exclusive 5G lab experience and discussion.
- ❑ From antenna to Screen: Real-time RADAR data acquisition and its signal processing.

RELEVANCE OF SHORT TERM COURSE:

India has been strengthening its capabilities in atmospheric and weather monitoring through initiatives led by organizations such as ISRO and IMD, and defense radars by DRDO. Indian mines are using radars and are actively participating in Indian radar system developments for their application. Various private organizations in India are also in radar signal and image processing technology developments for commercial use which includes robotics and artificial intelligence.Accurate observation of atmospheric parameters is crucial for weather forecasting, climate studies, disaster management, and aviation safety. Atmospheric radars, including wind profilers, cloud radars, and Doppler weather radars, play a vital role in studying precipitation, wind patterns, turbulence, and atmospheric dynamics.

Understanding radar principles, wave propagation, scattering mechanisms, and Doppler signal analysis enables engineers and researchers to design, operate, and interpret radar-based signal and 2D/3D images. Such expertise is essential to meet the increasing demand for real-time system development.This workshop will provide hands-on exposure to fundamental concepts of modern radars, data acquisition techniques, and radar signal and image processing methodologies. Participants will gain practical experience in radar system components, data analysis tools, and interpretation of radar observations, equipping them with industry- and research-relevant skills and enhancing their readiness for careers in meteorology, remote sensing, and atmospheric sciences.

Course objectives:

- Introduction to RADAR technology and its applications.
- Importance of radar signal and 2D/3D image processing.
- Application specific radar technology developments.
- Hands-on experience on radar hardware data acquisition and interpretation, MATLAB simulation and radar signal processing.
- Bridge the gap between theory and real-world design through lab sessions.
- Faculty/ student awareness on Indian Radar Establishments and Future Developments for research and career.

Hands-on lab sessions for 3 hrs/day (total 15 hrs)
Required Tools: MATLAB, Python, GNU Radio

Topics to be covered:

- ❑ Principles and Techniques of Modern Radar Systems.
- ❑ Variety Radars and their applications
- ❑ Clutter and Noise Analysis
- ❑ FMCW Radar
- ❑ Design of MTI Radar
- ❑ Radar Signal Processing
- ❑ SAR Image Processing and AI & ML
- ❑ Ground Penetrating Radar
- ❑ Atmospheric Radar
- ❑ Weather radar and AI & ML
- ❑ SONAR image processing and AI & ML

ANRF(erstwhile SERB)

Faculty Development Program/Student Workshop
on

Signal and Image Processing in Indian Radar Establishments and Future Development

(23rd Feb. – 27th Feb., 2026)

Patron:
Prof. K. Umamaheshwar Rao,
Director, NIT Rourkela

Chairman:
Prof. Sukadev Meher,
Professor, Dept. of ECE

Coordinators:
Dr. Lakshi Prosad Roy
Dr. Jogesh Chandra Dash

Department of Electronics and Communication Engineering,
National Institute of Technology Rourkela
Rourkela-769008,Odisha, India

Technically Co-Sponsored by:

IEEE ROURKELA SUBSECTION | IEEE AP-S Antennas and Propagation Society | MTT-S IEEE MICROWAVE THEORY & TECHNOLOGY SOCIETY | IEEE KOLKATA SECTION

About Institute:

NIT Rourkela is one of the premier national level institutions for technical education in the country and is funded by the Government of India. Government of India has elevated the Regional Engineering College, Rourkela to a deemed university under the name of National Institute of Technology, Rourkela.

Please visit: https://www.nitrkl.ac.in/

Rankings - 2025

34 NIRF Overall	13 NIRF Engg.	30 NIRF Research	281-290 QS-ASIA

Target Participants:

B. Tech. / B.E., M.E. / M. Tech / MS students, research scholars/professionals, faculty members working / planning to work in future in the area of Signal and Image processing. Specialization: ECE, EI, EE, or related branches.

Important dates:

Registration Deadline	~~13th Feb., 2026~~ 18th Feb., 2026
Confirmation	19th Feb., 2026

About Department:

The department of **Electronics and Communication Engineering** 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 advance and spread knowledge in the areas of Electronics, Communication, Instrumentation, Signal processing, Microwave and Radar and VLSI leading to creation of wealth and welfare of humanity. The department also offers Ph. D. for regular as well as sponsored candidates. The faculties of EC department are handling several externally funded research projects. Please visit:

https://www.nitrkl.ac.in/EC/

Departmental Speakers:

- Prof. Lakshi Prosad Roy
- Prof. Jogesh Chandra Dash
- Prof. Ajit Kumar Sahoo
- Prof. Upendra Kumar Sahoo
- Prof. Sandip Ghosal
- Prof. Sobhan Kanti Dhara
- Prof. Subrata Maiti
- Prof. Sudipta Maity

Contact and Queries:

Please send your queries directly to the course coordinators given below

Dr. Lakshi Prosad Roy	royl@nitrkl.ac.in
Dr. Jogesh Chandra Dash	dashjc@nitrkl.ac.in

Registration:

For online registration, fill the Google form below:
https://forms.gle/zi64vzpudkhVUdKy8

Registration fee:(Non- refundable)

- **Free for faculty members of Colleges/ Universities/ Organisations.**
- **Students: ₹ 295(₹250+GST)/- (NIL for NIT Rourkela students)**
- **Industry professionals and R &D – ₹ 885(₹750 +GST).**

Payment mode: (online only)

Merchant Name : CONTINUING EDUCATION NIT
UPI ID: 01389517841@sbi

Facilities:

- No travel allowance will be provided.
- Shared accommodation and food will be provided on a payment basis.

Certificate:

Certificate will be given to those participants who will attend all sessions.