

About IIT Kharagpur



Kharagpur - a dusty town tucked away in the eastern corner of India, famous until 1950 as home to the longest railway platform in the world - became the nursery where the seed of the IIT system was planted in 1951. IIT Kharagpur started its journey in the old Hijli Detention Camp in Eastern India, where some of the country's great freedom fighters toiled and sacrificed their lives for India's independence. Spurred by the success of IIT Kharagpur, four younger IITs sprouted around the country in the two following decades, and from these five came thousands of IITians, the brand ambassadors of modern India. It was the success of this one institution at Kharagpur that wrote India's technological odyssey.

The Institute takes pride in its relentless effort to provide the best platform for both education as well as research in the areas of science and technology, infrastructure designs, entrepreneurship, law, management, and medical science and technology. IITKGP is not just the place to study technology, it is the place where students are taught to dream about the future of technology and beam across disciplines, making differences enough to change the world.

Program Features/
Structure

Online Mode

5 Live Lecture
Sessions

6:00 PM – 8:00 PM

Organised by

Department of Electronics
& Electrical Communication
Engineering (E&ECE)

under Continuing Education
Programme (CEP)

Indian Institute of
Technology
Kharagpur

Program Fee

Course Fee:
₹10,000/- per
participant) +
GST @18% per
participant

Who will benefit
(Eligibility)
The students,
researchers and working
professionals interested
to gain insight into the
topic of microwave-
based imaging.

Last day of
Registration

07
October 2026

Accommodation
Not applicable. The
course will be
conducted entirely
online.

How to Apply

Use the link: <https://erp.iitkgp.ac.in/CEP/courses.htm> to apply
ONLINE.



Payment if applicable is to be done **ONLINE** after getting short
listed for the program.

Contact Us

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CEP

Short Term Course

Department of Electronics & Electrical
Communication Engineering (E&ECE)

Indian Institute of Technology Kharagpur
2026

Microwave Imaging

Short-Term Online Course

PROGRAMME SCHEDULE

Date	Day	Time
8 October 2026	Thursday	6:00 PM – 8:00 PM
13 October 2026	Tuesday	6:00 PM – 8:00 PM
3 November 2026	Tuesday	6:00 PM – 8:00 PM
5 November 2026	Thursday	6:00 PM – 8:00 PM
12 November 2026	Thursday	6:00 PM – 8:00 PM

Introduction / Overview

The present syllabuses of any Advanced Electromagnetic Engineering course in Indian University is silent on scattering problems; neither forward nor inverse scattering is included in the syllabus. However, for last twenty-five years, the research on inverse scattering has progressed from the realm of Physics and Mathematics to Engineering applications where systems are being built in satellites, space vehicles, non-destructive testing modules for infrastructure health monitoring, internal and external security instruments as well as in medical instrumentation. Today's Electronics Engineer cannot handle the scattering applications of microwave energy if the understanding of the technology in his training phase is not attempted. Inclusion of this long overdue module will bridge this gap in the parent course syllabus.

Program Objectives

- To explain the concept of inverse problem
- To emphasise the theoretical challenge of inverse problem
- To explain the electromagnetic model of a source
- To explain the electromagnetic model of scattering
- To explain the linearised solution approach of inverse scattering
- To explain the non-linearised solution approach of inverse scattering
- To expose the state-of-the art of Microwave Imaging

What you will learn

Program Content

Lecture 1 – Basics

Thursday, 8 October 2026 | 6:00 PM IST | 2 Hours

Fundamental concepts and basic principles of microwave imaging.

Lecture 2 – Inverse Source

Tuesday, 13 October 2026 | 6:00 PM IST | 2 Hours

Fundamentals of inverse source problems and their relevance to microwave imaging.

Lecture 3 – Inverse Scattering

Tuesday, 3 November 2026 | 6:00 PM IST | 2 Hours

Concepts and challenges associated with inverse scattering problems.

Lecture 4 – Solution Methods

Thursday, 5 November 2026 | 6:00 PM IST | 2 Hours

Methods and approaches for solving inverse source and inverse scattering problems.

Lecture 5 – Emerging Topics

Thursday, 12 November 2026 | 6:00 PM IST | 2 Hours

Emerging areas, recent developments, and future directions in microwave imaging.

About the Faculty



PROF. AMITABHA BHATTACHARYA

Professor, Department of Electronics & Electrical Communication Engineering, IIT Kharagpur

His research interests include **Microwave Imaging, Microwave Propagation, Ground Penetrating Radar, High Power Microwaves, and Microwave Stealth Technology**. He has published **135 research papers**, developed **6 NPTEL courses**, and served as Principal Investigator/Consultant for **21 research projects and consultancies** sponsored by organisations including DRDO, ISRO, Indian Army and BARC. He has also conducted **19 short-term courses** for scientists and professionals from defence, space and other organisations. He is a **Senior Member of IEEE** and has supervised doctoral, postdoctoral and postgraduate researchers.



Dr. Lorenzo Crocco

Research Director at the Institute for Electromagnetic Sensing of the Environment, National Research Council of Italy (CNR-IREA), in Naples.

Over 30 years of research in Applied Electromagnetism, specializing in direct and inverse scattering problems and microwave imaging. Practical Applications: Non-invasive electromagnetic diagnostics for medical imaging (breast cancer detection, cerebrovascular disease monitoring), environmental sensing, physical security, and food quality control. Recognized among the **top 2% of global scientists**, author of over **300 publications** (>8,000 citations, H-index 53), and **member of the Board of Directors of the European School of Antennas (ESoA)**.