

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

Classroom lectures – **60%**

Numerical problem solving – **20%**

Hands-on work with different software - **20%**

Program Fee

Nil for TEQIP-III sponsored participants

For others :
INR 15000/- + GST 18% (for teachers and others)
INR 10000/- + GST 18% (for outside students)
INR 20000/- + GST 18% (for industry participants)

Last day of Registration

11th
November 2019

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 being short listed for the program.

Contact Us

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Communication Engineering
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Program Schedule and Venue

5 days, 18 – 22 November
2019 (9:00 AM – 6 PM)

IIT Kharagpur –
Department of
Electronics and
Electrical
Communication
Engineering

Who will benefit (Eligibility)

For TEQIP-III Institutes: Only
faculty participants.
For others:
Teachers from Colleges/
Institutions/Universities.
Scientific Officers/Instructors/
Technical Assistants/Research
Scholars/Under Graduate and
Post Graduate Students/
Participants from Industries.

Accommodation

Accommodation will be
provided to the TEQIP-III
sponsored participants at
the Campus Guesthouse.
For other participants, the
same will be provided on
chargeable basis as per
rules.



NPIU

TEQIP-KIT

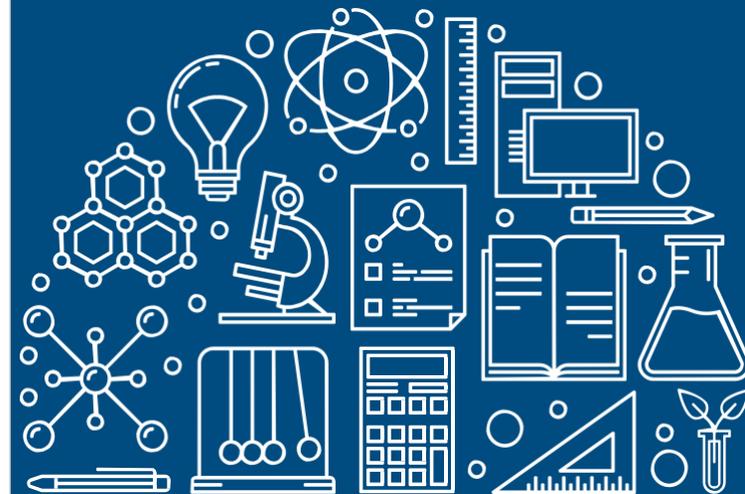
NPIU - A Unit of MHRD, Govt of India for
Implementation of World Bank Assisted Projects in Technical Education

Indian Institute of Technology Kharagpur

CURRENT TRENDS IN ANTENNA DESIGN

5 days

18 – 22 November 2019



Introduction / Overview

Current microwave systems for transmission and radiation of electromagnetic waves have to meet the competing requirements of enhanced functionality, low loss, reduced size and weight and low cost. It is important to appreciate that many of the design goals in modern efficient and miniaturized systems are self conflicting. For example, incorporation of multiband or broadband characteristics involves increase in physical size, which may have to be carefully optimized in handheld and wireless systems where space is at a premium. Similarly, development of low-loss devices, one of the focus areas of the course, are crucial for successful operation at the Ka and Ku-bands and beyond.

Program Objectives

Traditional technologies like the microstrip are prohibitively lossy at 20-30 GHz frequencies and beyond. The rectangular waveguide based designs, though satisfying the loss requirements, are comparatively bulky and difficult to effectively integrate with planar components. Keeping the above in view, the design and analysis of efficient modern systems will be addressed with particular emphasis on low-loss guided structures and antennas. Reconfigurable antenna for mobile and wireless communication and current antenna miniaturization techniques for the realization of sub-wavelength radiating structures would be discussed. In addition, metamaterials and their role in the design of systems with enhanced performance would be addressed. These include the design and realization of metamaterials, the design of electrically small antennas based on metamaterials and miniaturization of radiating structures based on the zeroth order resonance.

What you will learn

Program Content

Basic Electromagnetic Theory
Low Loss antennas and Guided Structures
Green's Function Analysis of Antennas
Antenna Miniaturization
Metamaterials
Reconfigurable antennas

Lab Experiments :

Metamaterial Antenna
SIW fed DRA
Horn antenna
Planar Dipole & Slot Antenna
Ring Resonator
Microstrip Antenna
Gunn Diode
Microwave Test Bench
VNA

About the Faculty

Dr. Bratin Ghosh

Prof. Bratin Ghosh received his Bachelors in Electronics and Telecommunication Engineering in 1990 from Jadavpur University, Kolkata, Master of Technology in Electronics and Electrical Communication Engineering with specialization in Microwave Engineering in 1994 from the Indian Institute of Technology, Kharagpur and Ph.D. in Applied Electromagnetics in 2002 from the University of Manitoba, Canada. Thereafter, he completed his postdoctoral from the Royal Military College of Canada. He is currently Professor in the Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur. He is a TPC member and an invited / keynote speaker and chaired sessions in many national and international conferences and seminars. He is also in the review and editorial boards of many international journals. He has been the recipient of many federal project grants in addition to research grants from the industry on the design of efficient antennas and guided systems. He has also organized many short term lectures and workshops in the field of applied electromagnetics that have been well attended by participants from both the academia and industry. He had been the recipient of the National Talent Search Scholarship, the University of Manitoba Graduate Fellowship and is Senior Member, IEEE. He is also actively involved in the design and analysis of cylindrical and spherical multilayer structures, efficient horn antenna feeds, metamaterials, dielectric resonator antennas, antenna miniaturization and numerical techniques. He has also edited a monograph on the full-wave analysis of guided wave structures and components.

