

Short Term Course On Millimeter-Wave Circuits and Antennas for Short Range Communications

A Continuing Education Program of
Indian Institute of Technology
Kharagpur

June 19, 2017 – June 23, 2017



Coordinator

Dr. M. K. Mandal

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Organized by

**Department of Electronics and
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Indian Institute of Technology
Kharagpur – 721 302**

OBJECTIVES AND SCOPE

In order to cope up with ever increasing number of wireless devices and high data throughput, future communication networks such as fifth generation (5G) wireless systems require significantly increased bandwidths. Huge bandwidth in the millimeter-wave band can be used to greatly increase the present day communication capacity. Millimeter-wave components are usually realized by frequency scaling the microwave components. However, the fundamental characteristics of millimeter wave communications differ from other existing communication systems, in terms of high propagation loss, sensitivity to blockage, dynamic range and high component loss. Several challenges such as design of efficient antennas, circuit and systems, interference management, spatial reuse, anti-blockage, and dynamics control are to be solved to fully exploit the potential of millimeter wave communications.

Primary focus of this course is to introduce design challenges of millimeter-wave circuits and antennas and their possible solutions which should be further investigated to facilitate the deployment of millimeter-wave communications systems in the future wireless communication networks. Major issues those will be addressed in the course are

- Characteristics of millimeter wave communications.
- Guiding structures, interconnects and packaging issues at millimeter-wave frequencies.
- Millimeter-wave circuit and components.

- Millimeter-wave Antennas.
- Active devices.
- Open research issues.

COURSE FACULTY

Faculty members and experts from IIT Kharagpur and some other institutes.

WHO SHOULD ATTEND

Faculty members from University and Engineering Colleges, Research Scholars, M. Tech./ B. Tech. final year students, practicing RF engineers, professionals and functional managers, administrators in the mobile phone, satellite communication and radar industries.

ELIGIBILITY

B.E. / B. Tech./ M. E. / M. Tech. or equivalent degree in Electronics/ Telecommunication / Electrical Engineering.

LOCATION

The Institute is about 5 Km away from Kharagpur Railway Station. Taxis, Auto-rickshaws, are available as transport.

ACCOMMODATION

Efforts will be made to book accommodation in the guest houses on receipt of written request from the participants by 12th June, 2017. Limited shared accommodation in the guest house is available which will be distributed according to the date of request received.

**Registration: Faculties from
AICTE approved Engineering
Colleges/ Universities**

Thirty seats are available under this category. There is no course fee for faculties from AICTE approved institutions. Free of cost shared accommodation in the guest house, food and registration kit will be provided. TA for participants is limited to AC-3 tier train fare by shortest route. Travel by car cannot be reimbursed. However, a Demand Draft of Rs. 5,000/- (drawn in favor of “**CEP-STC, IIT Kharagpur**” payable at Kharagpur) should be enclosed with the application form which will be refunded to the participants attending the course. Shortlisted applicants will be intimated by email.

Registration: for others

- (a) Scientists / Technologists / Engineers from industry or government institutions:
Course fee: 20,000/-.
- (b) Registered students
Course fee: 10,000/-.

Under this category, candidates will be provided course materials, working lunch, tea & snacks during the course hours. However, TA, boarding and lodging expenses should be borne by the participants.

Candidates should send the Demand Draft according to their category drawn in favor of “**CEP-STC, IIT Kharagpur**” payable at Kharagpur along with the completed registration form to Prof. M. K. Mandal,

Department of E and ECE, I.I.T., Kharagpur – 721 302, West Bengal, INDIA.

All participants should bring a letter of nomination from their head of institution stating that they are being deputed for the course. Also they are requested to send a soft copy of the application form and the demand draft to the email addresses given below.

Certificate:

A certificate of participation would be issued to all the participants from the Office of Dean, Continuing Education, I.I.T. Kharagpur.

Enquires should be addressed to:

Prof. M. K. Mandal,
Department of Electronics and Electrical
Communication Engineering, IIT Kharagpur
Kharagpur – 721 302

**E-mail : mkmandal@ece.iitkgp.ernet.in
office@adm.iitkgp.ernet.in**

**Phone : 91-3222-283550 (O)
9434205153/ 9614367855**
Telefax: 91-3222-282299
Fax : 91-3222-2553

**Short term course on “Millimeter-Wave
Circuits and Antennas for Short Range
Communications”, June 19- 23, 2017**

REGISTRATION FORM

Please complete the details below and mail it to the address overleaf along with the demand draft.

1. Name:.....
2. Designation:.....
3. Address (Office):.....
.....
.....
4. Phone (Mob.):.....
Phone (Res.):.....
E-mail (compulsory):.....
5. Male/ Female:.....
6. Highest academic qualification:.....
7. Accommodation Required (Y/N):.....
8. Bank Draft No.....Date.....
Rs.....drawn on.....Bank.

Date : Signature of the Applicant

Place :

Signature of Head of the department with seal.