



SPARC SPONSORED ONE WEEK WORKSHOP On **EMERGING TECHNOLOGIES OF 5G COMMUNICATIONS**

(10th – 14th February, 2020)

Sponsored by:
SPARC - MHRD

Organized by:
Department of Electronics
and Communication
Engineering,
NIT Tiruchirappalli, India

Collaboration with:
National Research Tomsk
Polytechnic University,
Russia,

About SPARC

Scheme for Promotion of Academic and Research Collaboration (SPARC) is a Ministry of Human Resource Development (MHRD), GOI initiative to improve research ecosystem in India. It supports national premier educational institutions by facilitating academic and research collaborations between Indian institutions and the best and selected institutions across the world's 28 nations. It encourages international faculty to visit Indian institutions and facilitate long-term stays to teach courses and conduct workshops for the benefit of Indian researchers and students in the selected research area.

About NIT

The National Institute of Technology, Tiruchirappalli (NIT-T), formerly known as Regional Engineering College, Tiruchirappalli (RECT) is one of the technical institutes started by the Government of India. RECT was imparting quality education since its inception in the year 1964. In 2003, the institution was granted 'Deemed to be University' status with the approval of UGC/AICTE. With a cream of engineering and management talent, encompassing exuberant students and inspiring faculty, integrated with State-of-the-art infrastructure facilities, NIT-T today has emerged as one of the premier institutions in the country. The Institute has signed MoUs with various Industries and Institutions both in India as well as abroad to promote collaborative research and consultancy.

About The Department

The Department of Electronics and Communication Engineering (ECE) was established in the year 1968. The vision of the Department is to provide valuable resources for industry and society through excellence in technical education and research. The Department offers Under graduate, Post Graduate, Research degree (M.S. & Ph.D.) programs. Research in the Department focuses on various disciplines such as Communication systems, Wireless networks, Signal and Image Processing, RF MEMS, Microwave Antennas, MIC, Optical Communication, Photonics and VLSI systems.

About TPU- Russia

The Tomsk Polytechnic University (TPU), Russia is ranked as 387 in QS world rank and as 10th in Russia. It has 277th place in the world in the direction of "Engineering and Technology" as of QS ranking and 201-250 place in the world in the discipline "Engineering: mechanics, aviation, production" and Chemistry.

Foreign Resource Person

Prof. DUSHANTHA NALIN K JAYAKODY,



He is currently working as Professor in School of Computer Science & Robotics, National Research Tomsk Polytechnic University (TPU), Russia. Prof. Jayakody has published over 120 international peer reviewed journal, conference papers and books. His research interests include PHY and NET layer prospective of 5G communications technologies such as NOMA for 5G, Cooperative wireless communications, device to device communications, LDPC codes, Unmanned Ariel Vehicle etc. He currently serves as an Area Editor of the Elsevier Physical Communications Journal, MDPI Information journal and Wiley Internet of Technology Letters.

Indian Resource Persons

- 1. Dr. S. J Thiruvengadam,**
Professor, Dept. of ECE, Thiagarajar College of Engineering, Madurai.
- 2. Dr. M D Selvaraj**
Associate Professor, Dept. of ECE, Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram. Tamilnadu
- 3. Dr. M. Surendar,**
Dept. of ECE, NIT, Karaikal.
- 4. Dr. Sudheesh P G**
Dept. of ECE, Manipal Institute of Technology, Manipal.
- 4. Faculties of ECE Dept. NIT, Trichy**
- 5. Technical persons from Keysight Technologies India Private Limited, Bangalore**

Course Contents

- Fundamental concepts for Design of wireless communication system.
- MIMO – OFDM Systems.
- Massive MIMO & Multi user Communications
- Co-operative Communication Networks
- Introduction to 5G Wireless Technologies.
- Key Performance Targets for 5G.
- Introduction to SWIPT, WPT.
- Energy Aware NOMA for 5G.
- Introduction to NOMA Technology and Modeling for 5G.
- Air to ground Communications.
- Integration of SWIPT with Unmanned Aerial Vehicle Communications.
- Under Water Communications
- Possible Future Research Directions.

Target Audience:

- Ph.D. scholars pursuing research in 5G technologies.
- M.Tech/B.Tech students undertaking thesis/ projects in 5G technology.
- Faculty members of Engineering Institutions/ Universities.
- Engineers from Wireless Industry and R&D Organizations.

Selection Criteria:

Selection will be done based on first come first served basis and the confirmed candidates will be notified immediately. Number of participants will be limited to 50.

Accommodation:

Limited number of rooms in NIT-T Guesthouses/Hostels are available on First Come first Served basis. Cost of boarding and lodging shall be borne by the applicant. Please note that no TA/DA shall be paid for this event by NIT-T.

How to Reach NIT Tiruchirappalli:

NIT-Trichy is located about 22 km from Tiruchirappalli Junction/Central Bus stand on the Trichy-Thanjavur Highway. The simplest and most economical way to reach NIT-Trichy is by bus. Any city Bus at Tiruchirappalli Junction will take you to the central bus stand. Board Thanjavur bound mofussil or route bus. The journey time will be around 40 minutes.

Registration Fee Particulars:

Participants shall make the fee payment for the registration through SBI collect according to their category as follows: SBI Collect home page (<https://www.onlinesbi.com/sbicollect/collecthome.htm>) → Tamil Nadu → Educational Institutions → Conference and Workshop NIT Trichy → EMERGING TECHNOLOGIES OF 5G COMMUNICATION.

Research Scholars & Students	₹ 2,500
Faculties	₹ 3,500
Industries & Government Organizations	₹ 4,000

The registration fee includes workshop kit, working lunch and refreshment for all 5 days.

Scanned soft copies of completed applications and SBI Fees payment receipt should be sent to the Coordinators by filling the details of this google form.

(Click the Link)

https://docs.google.com/forms/d/e/1FAIpQLScWUKQ3n55r4DGJbFG8hN-TmK65dB_9MM6yx8hTXSDv4vUJg/viewform?usp=sf_link

Registration form

One Week SPARC Sponsored Workshop on “Emerging Technologies of 5G Communications”

10th – 14th February, 2020

Name of the Participant : _____

Department : _____

Gender : _____

Designation : _____

Qualification : _____

Organization : _____

SBI Collect Reference No: _____

Mobile Number : _____

Email : _____

Accommodation Required (Yes/No): _____

I agree to abide by the rules and regulations governing the Workshop.

Place: _____ Signature of the Participant

Date: _____

Mr./Ms./Dr./_____ is a student /employee of our Institution and is permitted to attend this programme.

Place: _____ Signature of the Head

Date: _____ Institution with seal

Important Dates:

Last date for Applying with fee: **4th February 2020**

Confirmed Selection List by Email: **5th February 2020**

Coordinators:

Dr. P. Muthuchidambanathan,

Professor, ECE Dept.

Dr. G. Lakshmi Narayanan,

Professor, ECE Dept.

Dr. G. Thavasi Raja,

Assistant Professor, ECE Dept.

National Institute of Technology, Tiruchirappalli

Contact Address

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