Short Course in Bengaluru- "Cooperative 4G/5G MIMO Wireless Technology and Research opportunities at IIT KANPUR"
December 28th to 30th, 2016

Organized by Department of Electrical Engineering IIT Kanpur

IMPORTANT INFORMATION FOR THE SHORT COURSE AT MSRIT, Bengaluru

Note: Campus map of **M. S. Ramaiah Institute of Technology (MSRIT)** are given at the end of the document.

Contact Info

Note: Please contact only in case of **emergency**

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How to reach MSRIT, Bengaluru

Bengaluru is connected by rail and road with the major cities in India. MSRIT campus is located in Mathikere area. The college is located at a distance of about 7 kilometers from the KSR Railway Station (Majestic), 3 Kilometers from Yeswanthpur railway station and 8 kilometers from Cantonment railway station. **Taxis are available from the KSR Railway Station (Majestic) (from Platform number 1 side).** There is a pre-paid auto and taxi booth. **The rates are about Rs. 200/- to 250/- for a taxi and Rs. 50/- for an auto-rickshaw.** For taxi services you can also call the following taxi agencies.

Sunil Travels	9739438108/ 9980934666

Important Note: Please note visitor can enter through gate 10.

Please note that transportation has to be arranged by the participant and the associated charges have to be borne by the participant. These are not covered in the registration fees.

Air connectivity

Visitors coming over to Bengaluru can fly into Kempegowda Airport. Bengaluru is capital city of the state of Karnataka, India. One can avail the taxis at the airport taxi-stand. However, participants are suggested to exercise caution since they can charged high rates. You can use the taxi service numbers listed above to book a taxi in advance. **Depending on the type of vehicle,**

these taxis will charge between Rs 1200/- and Rs. 1600/-. (Charge for Air-conditioned taxi is only Rs. 100/- to 200/- extra.)

Accommodation Information

Accommodation for the participants is NOT provided. You can book the rooms at hotels mentioned below.

Accommodation Details:

1. **Grand**
   Boys PG and Lodge, 1st Cross, Near Ramaiah Engg. College bus stop, Mathikere, Bengaluru – 54. Contact No. (080) 41101338, (+91) 9972381338. (Approx: Rs 650/- per 2 persons and Rs 800/- per 3 persons)

2. **Maurya Paradise Inn**
   #7/1, MSREC Road, Mathikere, (Near Ramaiah Engg. College bus stop), Bengaluru – 54. Ph: 080-41279589. (Approx: Rs 850/- per single, Rs 1000/- per 2 persons and Rs 1300/- per 3 persons)

3. **Royal Residency**
   #8/1, 2nd Cross, MSRIT College Road, Mathikere (Near Ramaiah Engg. College bus stop), Bengaluru – 54. Ph: 080 – 42086870, 09886537666. (Approx: Rs 1000/- per 2 persons and Rs 1300/- per 3 persons)

4. **Visitors Comfort**
   #4, Sai Shamik Plaza, 3rd Cross, Opposite to M. S. Ramaiah College gate, Mathikere, Bengaluru – 54. Ph: 080 – 40933635, 9743858076. (Approx: Rs 1100/- per 2 persons and Rs 1300/- per 3 persons).

Also note accommodation is NOT included in the registration fees.

Breakfast/ Meals Information

Participants have to bear food expenses. Participants can have breakfast, lunch and dinner in MSRIT Canteen. Timings are as follows.

Breakfast: 8:30 AM to 11:00 AM

Lunch: 12:30 PM to 2:00 PM

In addition there are a variety of food outlets in and around MSRIT. Their location, timing details with contact information are given below.
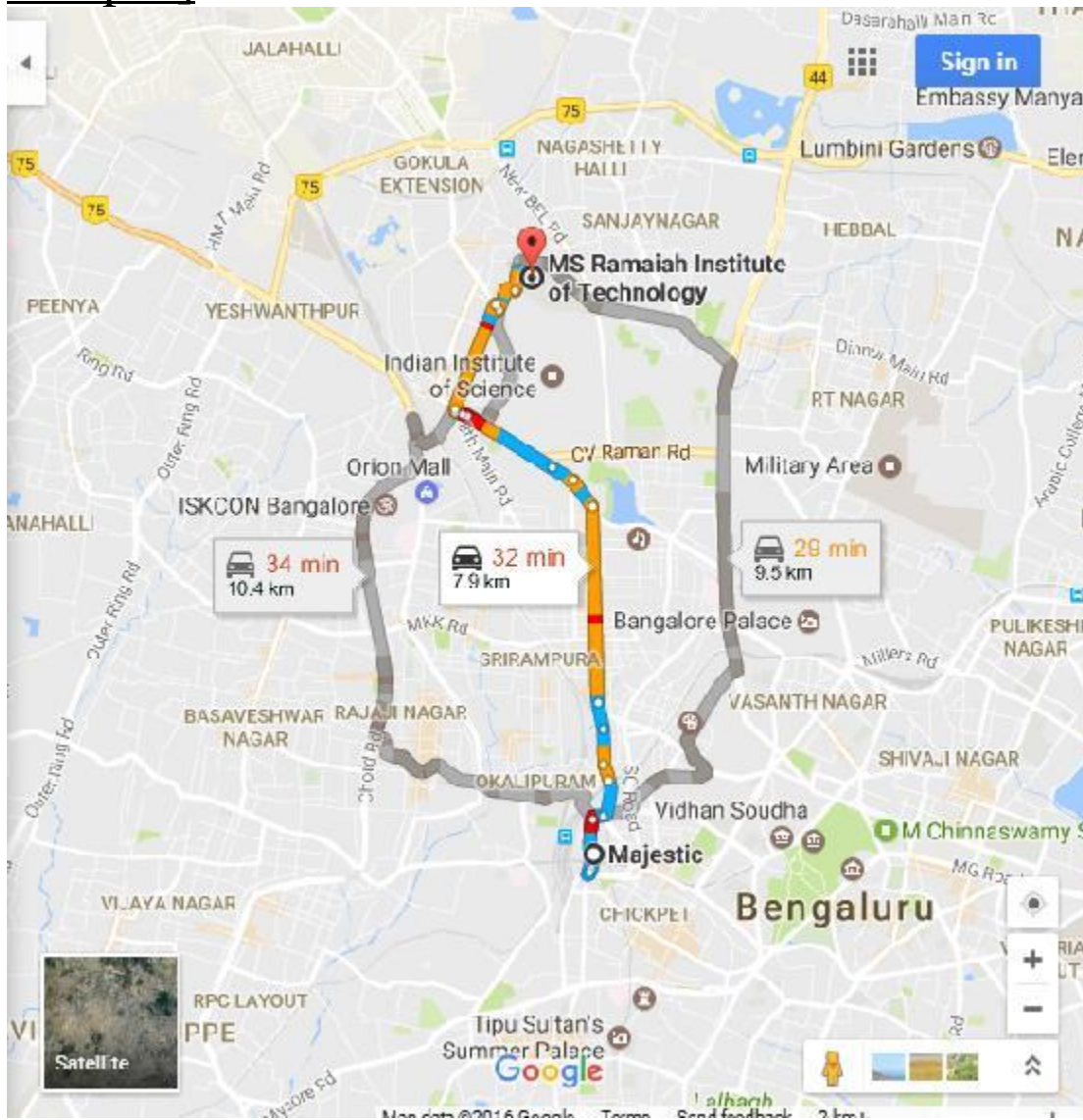
Food outlet	Location/ Timing
Food Village	Near gate 10, MSRIT Campus, 11:00 am- 11;00 pm
Nandini Deluxe	New BEL Road, 11:00 am- 11;00 pm

The venue for the lecture part of the short course is in LHC Seminar Hall-II, MSRIT Campus

Course folder, stationary and printed course material will be provided on 28th December morning during the registration session starting at 8:45 AM. Course certificate and receipt for the short course registration will be given only to those who attend all modules of the course and after all the payment dues are cleared.

Please bring a scientific calculator along with you to participate in problem solving during lectures and tutorial sessions.

[Map Showing Route From Majestic Gate to MSRIT Campus]

Tentative Schedule

The tentative schedule for the duration of the short course from 28th to 30th January is available online at: http://iitk.ac.in/mwn/bengaluru/index.html

DAY 1: Dec 28th, 2016 (Wednesday)	
09:00 AM- 10:15 AM	Direct Source-Destination Wireless Communication
10:15 AM- 10:45 AM	Tea Break
10:45 AM- 12:15 PM	BER/ Diversity of Direct-Source Destination Communication
12:15 PM- 02:00 PM	Lunch Break
02:00 PM- 03:15 PM	Tutorial and Problem Solving Session - Source-Destination Communication
03:15 PM- 03:45 PM	Tea Break
03.45 PM- 05:15 PM	Multiple Node/ Antenna Wireless Channels - Optimal Combining, Diversity and BER
DAY 2: Dec 29th, 2016 (Thursday)	
09:00 AM- 10:15 AM	Decode-and-Forward (DF) based Cooperative Relaying - BER and Diversity
10:15 AM- 10:45 AM	Tea Break
10:45 AM- 12:15 PM	Selective Decode-and-Forward (DF) Protocol for Cooperation - BER, Diversity and Optimal Power Allocation
12:15 PM- 2:00 PM	Lunch Break
02:00 PM- 03:15 PM	Tutorial and Problem Solving Session - DF & Selective DF
03:15 PM- 03:45 PM	Tea Break
03:45 PM- 05:15 PM	Cooperative MIMO Systems
DAY 3: Dec 30th, 2016 (Friday)	
09:00 AM- 10:15 AM	Cooperative Space-Time Block Coded (STBC) systems
10:15 AM- 10:45 AM	Tea Break
10:45 AM- 12:15 PM	Amplify-and-Forward (AF) Cooperative Systems
12:15 PM- 2:00 PM	Lunch Break
02:00 PM- 03:15 PM	Tutorial and Problem Solving Session - Cooperative MIMO/ STBC
03:15 PM- 03:45 PM	Tea Break
03:45 PM- 05:15 PM	MATLAB Demo Session