



Electronics & ICT Academy

(Under Ministry of Electronics and Information Technology, Government of India)
Indian Institute of Technology Guwahati, Guwahati, Assam, Pin 781039

Phone: +91-361-2583182, 2583009 Email: eictacad@iitg.ac.in

Faculty Development Programme

On

“Emerging Trends in Wireless Communication”

Venue: Department of Electronics and Communication, NERIST, Nirjuli.

Date: 26-30 November, 2018

Date	Time	Topic
26-11-2018 (Day 1)	08:30 am-9:00 am	Registration & Reporting
	9:00 am-9:30 am	Inauguration
	9:30 am-11:00 am	Module 1: Evolution of Wireless Communication technology generations, Radio propagation and modeling of wireless channels
	11:00 am-11:15 am	Tea Break
	11:15 am-1:15 pm	Module 1: Fundamentals of cellular systems, Multiple access Techniques, Digital communication over fading channel; Equalization and channel coding
	1:15 pm-02:15 pm	Lunch Break
	02:15 pm-03:45 pm	Module 1: Spread spectrum-Spread Spectrum Principles, Direct Sequence Spread Spectrum (DSSS) system model, Processing gain, Spreading codes, Multiple access interference, Power control, Synchronization, Rake receiver
	03:45 pm-04:00 pm	Tea Break
	04:00 pm-05:15 pm	Module 1: Multi-carrier system- The Multicarrier Concept, Orthogonal Frequency Division Multiplexing (OFDM) basics,
	05:15 pm – 05:30 pm	MCQ
27-11-2018 (Day 2)	09:00 am-11:00 am	Module 2: Timing and Frequency Synchronization, The Peak-to-Average Ratio, Single-Carrier Frequency Domain Equalization (SC-FDE)
	11:00 am-11:15 noon	Tea Break
	11:15 am-01:15 pm	Module 2: Multiple Input Multiple Output (MIMO) wireless systems-Narrowband MIMO Model, parallel decomposition of MIMO channel
	01:15 pm-02:15 pm	Lunch Break
	02:15 pm-03:45 pm	Module 2: Receive diversity and transmit diversity
	03:45 pm-04:00 pm	Tea Break
	04:00 pm-05:15 pm	Module 2: MIMO Channel Capacity for various conditions, Diversity–Multiplexing Trade-offs
	05:15 pm – 05:30 pm	MCQ

Electronics & ICT Academy

(Under Ministry of Electronics and Information Technology, Government of India)
Indian Institute of Technology Guwahati, Guwahati, Assam, Pin 781039

Phone: +91-361-2583182, 2583009 Email: eictacad@iitg.ac.in

28-11-2018 (Day 3)	09:00 am-11:00 am	Module 3: Introduction to LTE, Channel structure of LTE, Orthogonal Frequency Division Multiple Access (OFDMA)
	11:00 am-11:15 am	Tea Break
	11:15 am-01:15 pm	Module 3: Single-Carrier Frequency Division Multiple Access (SC-FDMA), Multiuser Diversity and Opportunistic Scheduling,
	01:15 pm-02:15 pm	Lunch Break
	02:15 pm-03:45 pm	Module 3: OFDMA and SC-FDMA in LTE, MIMO-OFDM, An overview of MIMO in LTE
	03:45 pm-04:00 pm	Tea Break
	04:00 pm-05:30 pm	Module 3: Introduction to LTE advanced- carrier aggregation, Coordinated multipoint. Relaying, device to device communication.
	05:15 pm – 05:30 pm	MCQ
29-11-2018 (Day 4)	09:00 am-11:00 am	Module 4: Roadmap to 5G: targeted specifications
	11:00 am-11:15 am	Tea Break
	11:15 am-01:15 pm	Module 4: Radio access technologies for 5G- Millimetre Wave, Modulation techniques and waveforms
	01:15 pm-02:15 pm	Lunch Break
	02:15 pm-03:45 pm	Module 4: Massive MIMO, Antennas and RF subsystem for 5G
	03:45 pm-04:00 pm	Tea Break
	04:00 pm-05:30 pm	Module 4: Access Network, 5G Internet
	05:15 pm – 05:30 pm	MCQ
30-11-2018 (Day 5)	09:00 am-11:00 am	Expert Talk by Prof. Ratnajit Bhattacharjee, IIT Guwahati on “Antennas for Wireless Handsets”
	11:00 am-11:15 am	Tea Break
	11:15 am-01:15 pm	Expert Talk by Prof. Ratnajit Bhattacharjee, IIT Guwahati on “Adaptive Arrays/Smart Antennas”
	01:15 pm-02:15 pm	Lunch Break
	02:15 pm-03:45 pm	Expert Talk by Prof. Md. Anwar Hussain, NERIST on “Role of MIMO Antennas in the Cooperative Cognitive Radio Networks”
	03:45 pm-04:00 pm	Tea Break
	04:00 pm onwards	Valedictory and Certificate Distribution