



Electronics & ICT Academy

(Under Ministry of Electronics and Information Technology (MeitY), Govt. of India)

Indian Institute of Technology Guwahati, Guwahati, Assam, Pin 781039

Phone: +91-361-2582503, 2582536 Email: eictacad@iitg.ernet.in

Venue: Indian Institute of Technology Guwahati.

Date: 17-22 December, 2017.

Reporting time on 17th December is 09:00 am.

Date	Time	Topic	Speakers
17-12-2017 (Day 1)	09.00am-09.30am	Registration & Reporting	
	09.30am-10.00am	Inauguration	
	10.00am-10.15am	Tea Break	
	10.15am-12.15pm (2 Hours)	Impedance Matching <ul style="list-style-type: none"> Smith Chart Basic Lumped Element Matching Stub Matching 	Prof. Ratnajit Bhattacharjee Professor, Department of EEE, IIT Guwahati
	12.15pm-01.15pm (1 Hour)	Coupler/ Divider <ul style="list-style-type: none"> Wilkinson Power Divider 	Prof. Ratnajit Bhattacharjee Professor, Department of EEE, IIT Guwahati
	01.15pm-02.00pm	Lunch Break	
	02.00pm-03.30pm (1 Hour and 30 minutes)	Coupler/ Divider (Continued) <ul style="list-style-type: none"> Branch Line Coupler Coupled Line Coupler 	Prof. Ratnajit Bhattacharjee Professor, Department of EEE, IIT Guwahati
	03.30pm-03.45pm	Tea Break	
	03.45pm-05.15pm (1 Hour and 30 minutes)	Coupler/ Divider (Continued) <ul style="list-style-type: none"> Rat Race Coupler Waveguide Couplers 	Prof. Ratnajit Bhattacharjee Professor, Department of EEE, IIT Guwahati
	05:15pm-05.30pm	MCQ 1	
18-12-2017 (Day 2)	09.00am-11.00am (2 Hours)	Microwave Filters <ul style="list-style-type: none"> Insertion loss Method of filter design Stepped impedance implementation 	Dr. Mahima Arrawatia Assistant Professor, Department of EEE, IIT Guwahati.
	11.00am-11.15am	Tea Break	
	11.15am-01.15am (2 Hours)	Microwave Filters (Continued) <ul style="list-style-type: none"> Coupled Line Filters Filters using coupled resonators 	Dr. Mahima Arrawatia Assistant Professor, Department of EEE, IIT Guwahati.
	01.15pm-02.00pm	Lunch Break	
	02.00pm-04.00pm (2 Hours)	Microwave Amplifier Design <ul style="list-style-type: none"> High Gain Amplifier Design 	Prof. Ratnajit Bhattacharjee Professor, Department of EEE, IIT Guwahati
	04.00pm-04.15pm	Tea Break	
	04.15pm-05.15pm (2 Hours)	Microwave Amplifier Design (Continued) <ul style="list-style-type: none"> LNA Design 	Dr. Mahima Arrawatia Assistant Professor, Department of EEE, IIT Guwahati.
	05.15pm-05.30pm	MCQ 2	
19-12-2017 (Day 3)	09.00am-11.00am (2 Hours)	Microwave Amplifier Design (Continued) <ul style="list-style-type: none"> Oscillator Design Power Amplifier 	Dr. Mahima Arrawatia Assistant Professor, Department of EEE, IIT Guwahati.
	11.00am-11.15am	Tea Break	
	11.15am-12.15pm (1 Hour)	Basic of RF PCB design and some thumb rules.	Dr. Mahima Arrawatia Assistant Professor, Department of EEE, IIT Guwahati.

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	12.15pm-01.00pm	Lunch Break	
	01.00pm-03.00pm (2 Hours)	Hands-on	
	03.00pm-03.15pm	Tea Break	
	03.15pm-05.15pm (2 Hours)	Hands-on	
	05.15pm-05.30pm	MCQ 3	
20-12-2017 (Day 4)	09.00am-10.00am (1 Hour)	RF Circuit Design and Simulation using ADS <ul style="list-style-type: none"> Advance Design System (ADS) Overview for MMIC, RFIC & RF Circuit Design and Simulation. 	Mr. Vishal Gupta <i>Sr. Applications Specialist</i> <i>Keysight Technologies.</i>
	10.00am-10.15am	Tea Break	
	10.15am-12.15pm (2 Hours)	ADS Schematic simulations (Example: Amplifier) <ul style="list-style-type: none"> DC Simulation AC Simulation Linear Simulation Non-Linear Simulation 	Mr. Vishal Gupta <i>Sr. Applications Specialist</i> <i>Keysight Technologies.</i>
	12.15pm-01.15pm (1 Hour)	Electromagnetic Simulation and Layout <ul style="list-style-type: none"> Patch Antenna Defective Ground Plane Simulation Antenna and Circuit Co-Simulation 	Mr. Vishal Gupta <i>Sr. Applications Specialist</i> <i>Keysight Technologies.</i>
	01.15pm-02.00pm	Lunch Break	
	02.00pm-03.30pm (1 Hour 30 minutes)	System Level Simulation for 5G using SystemVue <ul style="list-style-type: none"> Overview on System Level design and simulation using SystemVue. 5G Physical Layer Design and Simulation. 	Mr. Pratik Khurana <i>Application Engineer</i> <i>Keysight Technologies.</i>
	03.30pm-03.45pm	Tea Break	
	03.45pm-05.00pm (1 Hour 15 minutes)	<ul style="list-style-type: none"> Phased Array Beamforming techniques for 5G. 5G Test Bench using instrument integration. 	Mr. Pratik Khurana <i>Application Engineer</i> <i>Keysight Technologies.</i>
	05.00pm-05.15pm	MCQ 4	
21-12-2017 (Day 5)	09.00am-11.00am (2 Hours)	RF/Microwave Component Characterization <ul style="list-style-type: none"> Network Analyzer <ol style="list-style-type: none"> Network Analysis Conceptual Block Diagram Reflection Measurement Errors Transmission Measurement Errors Calibration: 12 Term Error Model Calibration procedures: TOSL, TRL, LRM, LRL, TRL*, LRM* Calibration Standards and Coefficients Measurement Limitations and Sources of Error Instrument Specifications 	Mr. Vishal Gupta <i>Sr. Applications Specialist</i> <i>Keysight Technologies.</i>
	11.00am-11.15am	Tea Break	
	11.15am-01.15pm (2 Hours)	<ul style="list-style-type: none"> Component and System Measurement Examples <ol style="list-style-type: none"> S-Parameters Gain/Loss 	Mr. Vishal Gupta and Mr. Pratik Khurana <i>Keysight Technologies.</i>

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		<ol style="list-style-type: none"> 3. Compression 4. Reflection Coefficient, VSWR, Return Loss etc. 5. Inter-modulation Distortion 6. Lab Exercise 	
	01.15pm-02.00pm	Lunch Break	
	02.00pm-03.15pm (1 Hour 15 minutes)	RF/Microwave Signal Analysis <ul style="list-style-type: none"> ▪ Spectrum Analyzer <ol style="list-style-type: none"> 1. Spectral Analysis 2. Conceptual System Block Diagram 3. Measurement Limitations and Sources of Error 	Mr. Vishal Gupta <i>Sr. Applications Specialist</i> <i>Keysight Technologies.</i>
	03.15pm-03.30pm	Tea Break	
	03.30pm-05.00pm (1 Hour 30 minutes)	Antenna Test <ul style="list-style-type: none"> ▪ Overview of antenna characterization ▪ Antenna Measurement System Design Considerations ▪ System Configuration and Performance Comparison 	Mr. Vishal Gupta and Mr. Pratik Khurana <i>Keysight Technologies.</i>
	05.00pm-05.15pm	MCQ 5	
22-12-2017 (Day 6)	09.00am-11.00am (2 Hours)	<ul style="list-style-type: none"> ▪ Mixed Domain instruments -For Time domain, Frequency Domain & Digital /Logic measurement. Instrument/product Detail-- High-Definition Oscilloscope: 8GHz, 4 Analog Plus 16 Digital Channels. 	<i>Keysight Technologies Team</i>
	11.00am-11.15am	Tea Break	
	11.15am-01.00pm (1 Hour 45 minutes)	<ul style="list-style-type: none"> ▪ Modular Instrument-AWG & Digitizer Combo Instruments: Instrument/Product details-PXI Based AWG and Digitizer Combination. 	
	01.00pm-02.00pm	Lunch Break	
	02.00pm-03.30pm (1 Hour 30 minutes)	<ul style="list-style-type: none"> ▪ Advanced Communication Measurement & Analysis Tools – Vector Signal Analyzer + Vector Signal Generator 	
	03.30pm-03.45pm	Tea Break	
	03.45pm-05.00pm (1 Hour 15 minutes)	<ul style="list-style-type: none"> ▪ Measurement & Characterization with IV, CV & Electrometer: SMU/Parametric Analyzer + Impedance Analyzer+ Electrometer 	
	05.00pm-05.15pm	MCQ 6	
	05.15pm-05.30pm	Certificate distribution and Closing ceremony	