



## Two Weeks Certification Program on **5G Design: Journey from Devices to Circuits**

**March 1<sup>st</sup> – 12<sup>th</sup>, 2021**

<http://academymnit.wordpress.com>



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### **Preamble (Electronics & ICT Academy)**

Government of India had announced a National Policy on Skill Development, which has set a target of skilling 500 million people by 2022 in the domain of Electronics & IT. Under the plan scheme of “Digital India Manpower Development”. MeitY has set up seven (07) Electronics and ICT Academies as a unit in 03 IITs, 03 NITs and 01 IIIT with an objective of faculty/mentor development/up gradation in the areas related to Electronics & ICT leading ultimately to improved employability of graduates/diploma holders. MNIT Jaipur has set up such an academy for providing specialized training to faculty and industry persons in the states/UTs of Rajasthan, Gujarat, Daman & Diu, Dadra Nagar Haveli.

### **(A) Issues-**

1. IT Hardware and Electronics Manufacturing industry- availability of properly trained, skilled and qualified manpower
2. Number of quality PhDs generated in IT / Computer Science is very low
3. In E & ICT domain- there is a very high degree of obsolescence of existing technologies and faster emergence of newer technologies

### **(B) Approach-**

1. A focused faculty training/updation programme for IT, Electronics and related sectors
2. Spreading up and continuous updation regarding Emerging Technology
3. Training and consultancy services for Industry
4. Design, Develop and Deliver specialized modules for specific research areas and Industry
5. Providing advice and support for technical incubation and entrepreneurial activities

An intensive two-week online certification programme is being organized jointly by IIT Guwahati, PDM IIITDM Jabalpur, NIT Patna, and MNIT Jaipur for the faculty of engineering and technological institutions. It is also open to persons from industry and doctoral students of Indian organizations. This workshop will cover fundamentals of Basics of RF Communication, RF Device Simulation and Modelling and Power Amplifier Design. Eminent experts from IIT/NIT/Industry and prestigious foreign universities would be conducting online lab and training sessions.

### **Experts/Speakers-**

- 1) [Dr. Surinder Singh \(Director, SCL Chandigarh\)](#)
- 2) [Dr. H. S Jatana \(Senior Head, SCL Chandigarh\)](#)
- 3) [Prof. Anand Bulusu \(IITRoorkee\)](#)
- 4) [Dr. Salil Kashyap, Dr. Ribhu Dr. Sudarshan Mukherjee, Dr. Gaurav Trivedi, IITG](#)
- 5) [Dr. Aditya Dalakoti, Mr. Ashish Jindal \(DRDO\)](#)
- 6) [Puneet Mittal -Industry](#)

### **Course Content:**

- 1: Introduction and Tools Overview: Introduction: Basics of RF Communication; Setup of Scikit-RF
- 2: RF ASIC Concepts 1: Two port Networks, Stability, Equivalent Device Models, Impedance Matching, Biasing
- 3: Device: Semiconductor general basics and requirements, Exploration in Si MOSFET, GaN HEMT
- 4: Modelling: Basic of Device Modelling, Passive and Active Model, Hands on Modelling of passive component using Scikit-RF
- 5: RF Simulations: Hands of tutorial for Doing Impedance Matching using Scikit-RF
- 6: RF ASIC Concepts 2: PDK Development, Layout Issues, Packaging Issues and package selection, Testing
- 7: Power Amplifier Design: Basics of PA, different classes, performance matrix, design of one topology for 5G , Flow of MMIC design using ADS
- 8: Measurement: Load-pull measurement, DC-IV, S parameter and power measurement

### **Programme Coordinator:**

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### **Registration:**

Registration is open to faculty, industry persons, doctoral, postgraduate and graduate students. Participants will be admitted on first-come first-served basis. Register online at - [http://www.mnit.ac.in/eict/acad\\_training\\_prg.php](http://www.mnit.ac.in/eict/acad_training_prg.php)

### **Certification Fee:**

- Academic (student/faculty): 500/-, Industry/Others: 1000/-
- (A) Fee once paid will not be refunded back; it may be adjusted in future courses upon prior request.
  - (B) The fee covers online participation in the programme, comprehensive tutorials, practice notes & certification charges.
  - (C) The organizers should receive the registration amount through online payment gateway provided at the registration portal.
  - (D) Register here: <http://online.mnit.ac.in/eict/>

→ For any other query, email us at [academy@mnit.ac.in](mailto:academy@mnit.ac.in)