Joint Online Faculty Development Programme
Demystifying 5G RF ASICs
(IIT Guwahati , MNIT Jaipur, NIT Patna, IIITDM Jabalpur)

Organized By
E&ICT Academy, NIT Patna

24 Aug – 4 Sep 2020
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Supported By:

Ministry of Electronics and Information Technology,MeitY, Govt. of India.

Academy Level Coordinators :

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About NIT Patna :

National Institute of Technology Patna is the 18th National Institute of Technology created by the Ministry of H.R.D. Government of India after rechristening the erst while Bihar College of Engineering Patna on 28/01/2004. The Institute imparts high level education training, research and development in science, engineering technology and humanities alongwith high quality education and values at UG ,PG and Ph.D. level.

At present the Institute offers courses in six major technical disciplines viz. Architecture, Civil Engineering, Computer Science & Engg., Electrical Engg., Electronics & Communication Engg. and Mechanical Engg. It also consists of well-established departments of Physics, Chemistry, Mathematics and Humanities and Social Sciences.

About E&ICT Academy Patna :

Ministry of Electronics and Information Technology, Government of India has instituted seven Electronics and Information & Communications Technology (ICT) Academies of which, the academy of NIT Patna is one. The Academy at NIT Patna aims to design and organize basic as well as specialized training programmes in niche areas of electronics and ICT for the development required knowledge base, skills and tools to equip the teaching community with better knowledge and understanding.

Experts :

- Shri Surinder Singh **(Director, SCL Chandigarh)**
- Shri H. S Jatana **(Senior Head, SCL Chandigarh)**
- Prof. Anand Bulusu **IIT Roorkee**
- Dr. Salil Kashyap, **IIT Gauwahti**
- Dr. Ribhu, **IIT Gauwahti**
- Dr. Sudarshan Mukherjee, **IIT Gauwati**
- Dr. Gaurav Trivedi, **IIT Gauwati**

Industry Speakers :

- Dr. Aditya Dalakoti
- Mr. Ashish Jindal (DRDO)
- Puneet Mittal

Course Content :

→ **Introduction and Tools Overview:**

→ **Introduction to 5G (progression of communication channels from 1G to 5G, usage, timeline, market); Basics of RF Communication; Setup of Scikit-RF and CppSim RF Simulator**

→ **5G MIMO Architecture and System Simulation: MIMO in 5G, MIMO for TX and RX, Basic 5G System Setup and visualization using a simulator**

→ **RF ASIC Concepts 1: Two port Networks, Stability, Equivalent Device Models, Impedance Matching, Biasing**

→ **RF Simulations: Hands of tutorial for Doing Impedance Matching and bias-T development using Scikit-RF**

→ **RF ASIC Concepts 2: PDK Development, Layout Issues, Packaging Issues and package selection, Testing**

→ **Power Amplifier Design: Basics of PA, different classes, performance matrix, design of one topology for 5G**

→ **Power Amplifier Simulations: Design and Simulations of a couple of PA topologies using a Scikit-RF. LNA Design: LNA Basics, Design Topologies, Trade-Off Space for LNA**

→ **LNA Simulations: Design and Simulations of a couple of LNA topologies using a Scikit-RF.**

→ **RF Channel Architecture and Simulations: Different Channel Architectures and their feasibility from 5G perspective, Simulations of channel using CppSim RF System Simulator**

Course Fee

Certification Fee:-
Faculty/ PhD Scholar = **Rs.500/-**
(SC/ST = **Rs. 250/-**)
Others (Except Faculty/PhD-Scholar): **1000/-**
(SC/ST = **Rs. 500/-**)

Online payment details :-
Bank Name: Allahabad Bank
Account Name: NIT Patna
Account No.: **50380476798**
IFSC Code: **ALLA0212286**

Link for registration :
https://forms.gle/8kze6yw8BHVUqKXX7