

### **Resource Persons:**

**Prof G.Sasibhushan Rao,**  
Senior Professor &  
Former Member - Executive Council, Andhra  
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**Dr V.Venkata Mani**  
Associate Professor, NIT, Warangal  
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**Dr. Neelakandan Rajamohan**  
Assistant Professor,  
Indian Institute of Technology, GOA, India.

**Dr. Prabhu chandar**  
Director  
Research labs  
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**Dr. Debarati Sen,**  
Associate Professor  
G.S.Sanyal School of Telecommunications  
Chair, IEEE Kharagpur Section,  
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**Dr. Soumya Prakash Dash**  
Assistant Professor  
School of Electrical Sciences  
Indian Institute of Technology, Bhubaneswar  
Jatni, Khordha, India.

**Dr. Vijaya Ganeshwar Reddy**  
Professor  
Govt. Ayurvedic College  
Hyderabad

**Mr. M. Ganesh**  
NIT Warangal

### **Advisory Committee:**

**Dr. K. Sudheer Reddy, Senior Consultant, Infosys**  
**Mr G. Prakash Babu, Dean Training & Placements**  
**Dr. Haribabu Thammineni, Vice-Principal-Admin**  
**Prof. K.V. Narasimham, Coordinator, IQAC, COE**

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**Sri P. Srinivasa Rao**  
Vice-Chairman  
**Sri K. Siva Rama Krishna**  
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**Dr V. V. Rama Reddy**  
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**Dr M.Rajan Babu**  
Professor & HOD-ECE

### **Coordinator:**

Dr.B.Kiranmai

### **Co-Coordinator:**

Mr. S.S. Kiran

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Dr.S.Sridhar, Professor & Vice-Principal-Academic  
Dr. B. Sridhar, Professor  
Dr. A. V. Paramkusam, Professor  
Mr. V. Nancharai, Associate Professor  
Mr. R. V. Ch. Sekar Rao, Associate Professor  
Mr. B. RamaMohan, Associate Professor  
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Mr. S. Rama Krishna, Associate Professor  
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Mr. J. Siddhartha Varma, Assistant Professor  
Mr. K. Gurucharan, Assistant Professor  
Mrs. S. DurgaMadhuri, Assistant Professor  
Mr. T. Anil Kumar, Assistant Professor  
Mrs. B.V. Rama Gowri, Assistant Professor



**A Five-Day Online FDP on  
5G LTE Wireless Communication systems  
for NB-IOT: MIMO, Massive MIMO Systems,  
Cooperative Communication and IOT  
Sponsored by AICTE ATAL Academy**



**07<sup>th</sup> -11<sup>th</sup> December 2020**

**Organised by  
DEPARTMENT OF ELECTRONICS AND  
COMMUNICATION ENGINEERING  
LENDI INSTITUTE OF ENGINEERING  
AND TECHNOLOGY**

**An Autonomous Institute**

Approved by A.I.C.T.E & Permanently Affiliated to  
JNTU, Kakinada

Accredited by NBA, NAAC with 'A' Grade,  
Jonnada (Village), Denkada (Mandal),  
Vizianagaram Dist – 535 005 [www.lendi.org](http://www.lendi.org)

### **About the College:**

Lendi Institute of Engineering & Technology established in 2008, under the aegis of Sai Dhamam Educational Trust, is an affiliated college of the JNTU(K). Ever since its inception, the institute has been playing a significant role in imparting technical education in the state of Andhra Pradesh. Lendi offers six UG programmes (B. Tech) viz., EEE, ME, ECE, CSE, CSSE, CSIT and Four M.Tech programmes. The college has risen to fame in a short period because of the availability of highly motivated teaching staff, top- notch infrastructure and placements to the outgoing students.

### **About Department:**

Department of ECE was started with an initial intake of 60 students (in 2008) and gradually enhanced to 180 students intake at graduation level. Post-Graduation M.Tech program in Embedded Systems & VLSI Design was introduced in 2014 – 2015 with an intake of 18 seats. The department is strengthened by its eminent faculty of 6 doctorates, 13 pursuing doctorates and senior faculty. Department is equipped with state of art infrastructure comprising ICT class rooms, advanced laboratories including Industry sponsored lab, dedicated projects lab and R&D lab supported by licensed software tools like Mentor Graphics, MATLAB, XLINX Vivado and ANSYS-HFSS etc

### **About the Faculty Development Programme:**

As part of its Skill Development—Train the Trainer Programmes, Lendi desires to offer Faculty Development programmes (FDP) in various emerging areas of modern technologies. The institute shares a vision similar to the ATAL Academy, the All India Council for Technical Education's (AICTE) newly established Training And Learning Academy. These programmes have been helping teachers hone and upgrade their teaching & training abilities to meet the requirements of their students. After attending these FDPs, the teacher participants would design similar learning programmes and deliver them to their colleagues and students.

The 5G wireless communications will enable countless automated wireless applications for the rapidly growing Internet of Things (IoT) market. In future more than 75 billion devices will be connected to the Internet of Things, from disposable tracking devices used in shipping pharmaceuticals and perishables to smart city lighting and utilities. In this context, a very large bandwidth is needed for this large scale deployment of connections, a LPWA (low power wide area) will provide smooth, uninterrupted operations in a speedy 5G communications.

Mobile IoT technologies, such as Long-Term Evolution machine-type communications (LTE-M) and Narrowband IoT (NB-IoT), deliver secure and cost-effective LPWA capability today and are catalysts in the future of 5G integration and growth worldwide.

The central goals of 5G networks of the future are to achieve data rates in excess of 10 Gbps, supporting dense connectivity of up to 1 million sensors per square kilometer, and ultra-low latencies lower than a millisecond. These technologies enable the realization of several new applications such as V2V (vehicle-to- vehicle)/ V2X (vehicle to infrastructure) communication, Augmented/ Virtual reality (AR/ VR), among others

The AICTE Training and Learning (ATAL) Academy sponsors this FDP

### **The Primary Objectives of the FDP are:**

- To introduce the 5G technology and the research areas in the advanced wireless communication technology.
- To enhance the research abilities of the faculty in the advanced wireless communication technology.
- To inculcate the habit of learning the advancements in the field of wireless communication technology.

### **Topics:**

**Day 1:** 5G Network Goals and Overview of Key Technologies, Fading channels and BER analysis and Introduction MIMO Technology, MU-MIMO Technologies

**Day 2:** Human values, stress management, Beam forming and Introduction to Massive MIMO

**Day3:** MW communications, Cooperative Communication MIMO, and Hands on experience with Lab view on Massive MIMO System and Receiver Design with Perfect/Imperfect CSI New Modulation Schemes for 5G massive MIMO.

**Day 4:** Spectrum Sensing in Fading Wireless Channels, Cooperative Spectrum Sensing , Introduction to 5G New Radio technology and Demonstration on 4G/5G Testbed

**Day 5:** 5G New Radio (NR) Standard, LTE- Cat M1 and Cat NB 1 Standards for Narrowband IoT and Synchronization in distribution Massive MIMO systems for 5G and Beyond communication

### **Link for the registration:**

Participants are requested to register compulsorily in either of the following links.

<https://www.aicteindia.org/atal> or  
<https://atalacademy.aicte-india.org/signup>

### **Timelines:**

**Dates: 07<sup>th</sup> -11<sup>th</sup> December 2020**

### **Eligibility:**

Faculty members of the AICTE approved institutions, Research scholars, PG Scholars, participants from Government, Industry (Bureaucrats / Technicians Participants from Industry etc.) and staff of host institutions. Not more than 30% from Host Institution

### **Details:**

The mode of the FDP is ONLINE. Participants are requested to have laptop or desktop with broad band internet connectivity.

**There is no Registration Fee from any participant.**

Preference will be given to new participants. Maximum 200 participants may be allowed to attend online FDP on a first come first serve basis.

### **Test and Certification:**

A test will be conducted by the coordinator at the end of the program and the certificates shall be issued to those participants who have attended the program with minimum 80% attendance, scored minimum 60% marks in the test and submitted feedback form.

An e-certificate can be downloaded from AICTE ATAL website or will be sent through an e-mail of all the registered participants.

### **For any queries contact:**

**8500267193, 9985163700**



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