



**Five days online National Workshop on  
“Recent Trends in Microelectronics, VLSI Circuits and their Applications”  
25<sup>th</sup> – 29<sup>th</sup> January 2019  
In Association with IETE Vijayawada Chapter**

### **Objective**

The objective of the seminar on Recent Trends in Microelectronics, VLSI Circuits, and their applications is to provide participants with a comprehensive understanding of the latest advancements, emerging trends, and innovative applications in the field of microelectronics and VLSI (Very Large-Scale Integration) circuits. Awareness of Recent Advancements: Introduce participants to cutting-edge developments in microelectronics and VLSI circuits, including advancements in fabrication technologies, design methodologies, and integration techniques. Exploration of Emerging Trends: Identify and discuss emerging trends shaping the future of microelectronics and VLSI circuits, such as the rise of AI and machine learning accelerators, the Internet of Things (IoT), edge computing, neuromorphic computing, quantum computing, and bioelectronics systems. Understanding Applications across Industries: Illustrate the diverse range of applications of microelectronics and VLSI circuits across various industries, including telecommunications, automotive, healthcare, consumer electronics, aerospace, and defence.

### **Description**

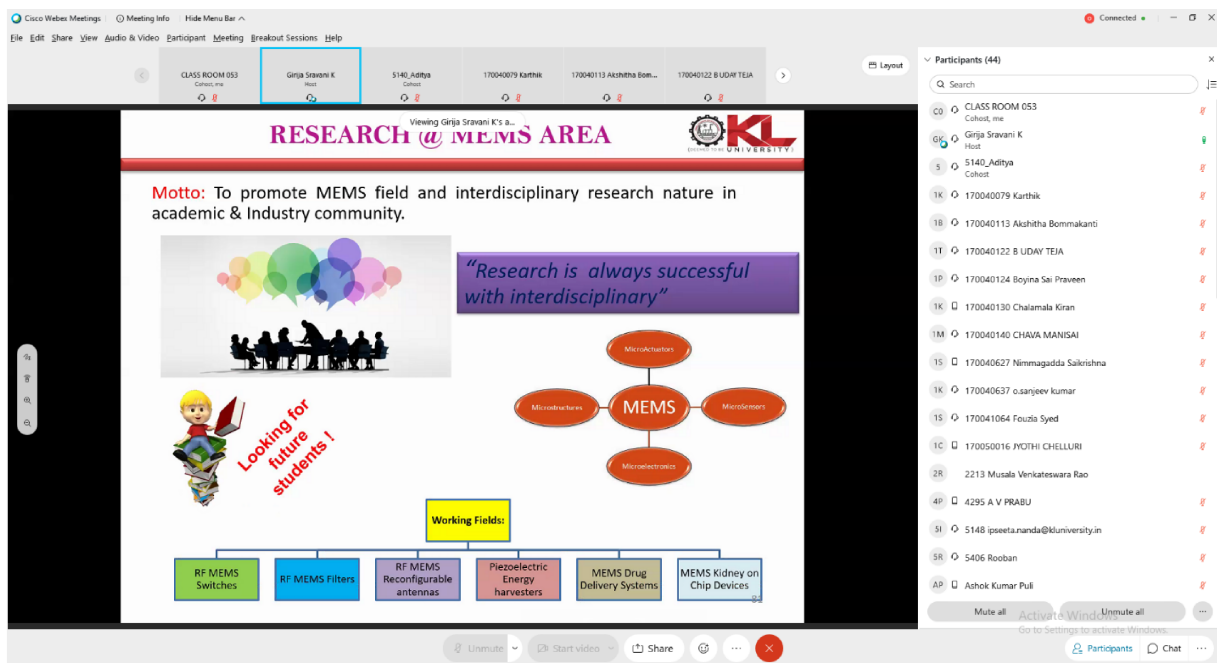
The seminar on Recent Trends in Microelectronics, VLSI Circuits, and Their Applications is designed to offer participants a comprehensive overview of the latest advancements, innovations, and applications in the fields of microelectronics and VLSI (Very Large Scale Integration) circuits. Introduction to Microelectronics and VLSI Circuits: An overview of the fundamental principles of microelectronics and VLSI circuits, highlighting their importance in modern technology and everyday life. Recent Advances in Microelectronics: Exploration of cutting-edge developments in microelectronics, including advancements in semiconductor materials, device structures, and fabrication techniques such as FinFETs, nanotechnology, and 3D integration. Emerging Trends in VLSI Circuit Design: Discussion on the latest trends in VLSI circuit design, such as ultra-low power circuits for IoT (Internet of Things) applications, high-speed communication circuits for 5G and beyond, and specialized accelerators for artificial intelligence and machine learning. Design Automation and Tools: Overview of the state-of-the-art design automation tools and methodologies used in VLSI circuit design, including Electronic Design

Automation (EDA) software, hardware description languages (HDLs), and verification techniques. System-on-Chip (SoC) Design: Examination of SoC design methodologies and architectures, focusing on integration challenges, interconnect optimization, and system-level design considerations.

### Day 1: 25-01-2021 Monday Forenoon

Inaugural by Dr. K. Srinivasa Rao, Head MERG and Convenors at 10:00 AM

The speaker for Forenoon Session is Dr. K. Srinivasa Rao. The topic is “Overview on CMOS and MEMS Integration”. Session is focused on CMOS (complementary metal-oxide-semiconductor) MEMS (micro-electro-mechanical systems) fabrication technologies and enabled micro devices of various sensors and actuators. The technologies are classified based on the sequence of the fabrication of CMOS circuitry and MEMS elements.



Day-1 Screenshot of the online Meeting

### Day 1: 25-01-2021 Monday Afternoon

The speaker for Afternoon Session is Dr. K. Satheesh. The topic is “Kidney on chip”. Session is focused on A model that closely resembles the human situation would enable a more accurate prediction of drug-induced nephrotoxicity and reduce the number of animals used in preclinical testing. A kidney-on-a-chip model is the combination of a kidney model (ideally a 3D model) with a platform recreating the microenvironment or structure of the kidney.

The screenshot shows a Cisco Webex Meeting interface. The main content is a presentation slide titled "Kidney Disease". The slide is divided into two main sections: "Introduction" and "Different diseases".

**Introduction:**

- Glomerular
- Tubular
- Interstitial
- Reno vascular
- Combination

**Different diseases:**

- Glomerular Disease
- Franconi syndrome
- Proximal RTA
- Barter Syndrome
- Gitelman Syndrome

The diagram illustrates the causes of Chronic Kidney Disease (CKD). At the center is a kidney icon labeled "CKD (Chronic Kidney Disease)". Arrows point to it from several factors: "Diabetes", "High blood pressure", "Heart problems or stroke", "Obesity", "Family history", "Tobacco use", and "60+ years old".

The meeting interface includes a top bar with "Cisco Webex Meetings", "Meeting Info", and "Hide Menu Bar". A toolbar at the bottom has "Unmute", "Start video", "Share", and "Participants" buttons. A "Participants (27)" list is visible on the right side of the screen.

**Day-1 Screenshot of the online Meeting**

## **Day 2: 26-01-2021 Tuesday Forenoon**

The speaker for Forenoon Session is Mr. V V S Ch Swamy. The topic is “Solar cells design”. Session is focused on Solar cells can be classification into first, second and third generation cells. The first-generation cells—also called conventional, traditional or wafer-based cells—are made of crystalline silicon, the commercially predominant PV technology, that includes materials such as polysilicon and monocrystalline silicon. Second generation cells are thin film solar cells, that include amorphous silicon, CdTe and CIGS cells and are commercially significant in utility-scale photovoltaic power stations, building integrated photovoltaics or in small stand-alone power system.

Cisco Webex Meetings Meeting Info Hide Menu Bar

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

CLASS ROOM 053 S140\_Adiya V V S CH swamy 170040028 A.Mahendra 170040113 Akshitha Bom... 170040122\_BUDAY TEJA

Types of optical fibers

Single mode fibers.

- This kind of fibers are used to transmit one signal per fiber
- Small cores (9µm of diameter), cladding (125µm of diameter) and transmits infrared light from laser sources.

Fig: 1 Refractive index profile of single mode step index fiber ( $n_1 = 1.4504$ ,  $n_2 = 1.4447$ )

Multimode mode fibers

- Step index fibers
- Graded index fibers

Participants (22)

CLASS ROOM 053 Cohost, me

S140\_Adiya Host

V V S CH swamy

BALAJI B Cohost

170040028 A.Mahendra

170040113 Akshitha Bommakanti

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170040627 Nimmagadda Saikrishna

170041064 Fouzia Syed

5239-Lakshmana Kumar

5616 Arunmetha

Ashok Kumar Pulli

Bitra Rajyalakshmi

divya vani

Dr Josphitha C

Girja Sravani LEELA KRISHNA RANGISETTY

LEELA KRISHNA RANGISETTY

Puja Ghosh

Mute all Unmute all

Unmute Start video Share

Participants Chat

Day-2 Screenshot of the online Meeting

## Day 2: 26-01-2021 Tuesday Afternoon

The speaker for Afternoon Session is Dr. Rajendra Prasad. The topic is “Low Power VLSI Design using Advanced Technologies : Research Opportunities”. Session is focused on the recent trends in the developments and advancements in the area of low power VLSI Design. Though Low Power is a well established domain, it has undergone lot of developments from transistor sizing, process shrinkage, voltage scaling, clock gating, etc., to adiabatic logic.





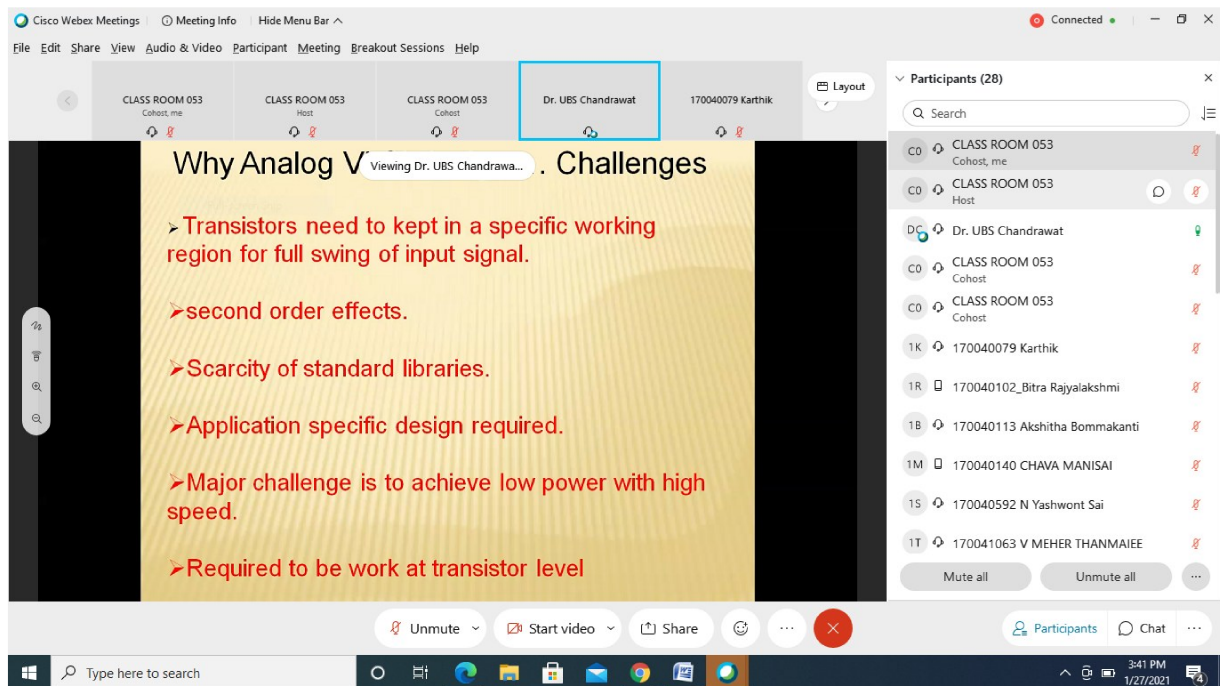
**Day-2 Screenshot of the online Meeting**

### **Day 3: 27-01-2021 Wednesday Forenoon**

The Speaker for forenoon session is Dr. Puja Ghosh. The topic is “Reliability issues in Bandgap Engineered FET device”. Session is focused on Comparison to MOSFETs where carrier injection is used in the form of thermionic current, in the tunneling transistors, the tunneling mechanism through the barrier potential for carriers makes the current follow through the device. Due to band-to-band tunneling (BTBT) in TFETs, some limitations of MOSEFT can be overcome.

### **Day 3: 27-01-2021 Wednesday Afternoon**

The speaker for Afternoon session is Dr. Uday Bhanu Singh. The topic is “Challenges in low power high speed CMOS opamp design”. Session mainly focused on the unique behavior of the MOS transistors in subthreshold region and low voltage operation. While operating the device at weak inversion results low power dissipation but dynamic range is degraded. Optimum balance between power dissipation and dynamic range results when the MOS transistors are operated at moderate inversion.

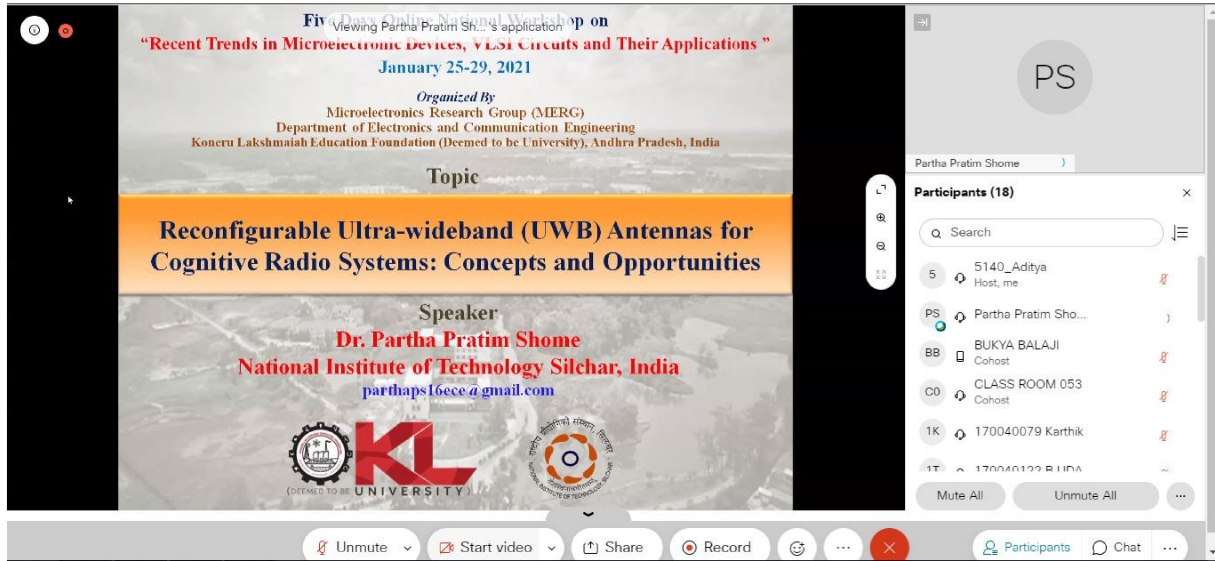


**Day-3 Screenshot of the online Meeting**

#### **Day 4: 28-01-2021 Thursday Forenoon**

The speaker for forenoon session is Dr. PathaPratimShome. The topic is “Reconfigurable Ultra-wideband Antennas for Cognitive Radio Systems: Concepts and Opportunities”. Session focused on reconfigurable antennas are reviewed for ultra-wideband (UWB) cognitive radio communication applications. switches are incorporated into the filtering UWB antennas to construct the cognitive radio UWB (CR-UWB) antenna to make the antenna switch between the UWB antenna and band-notched UWB

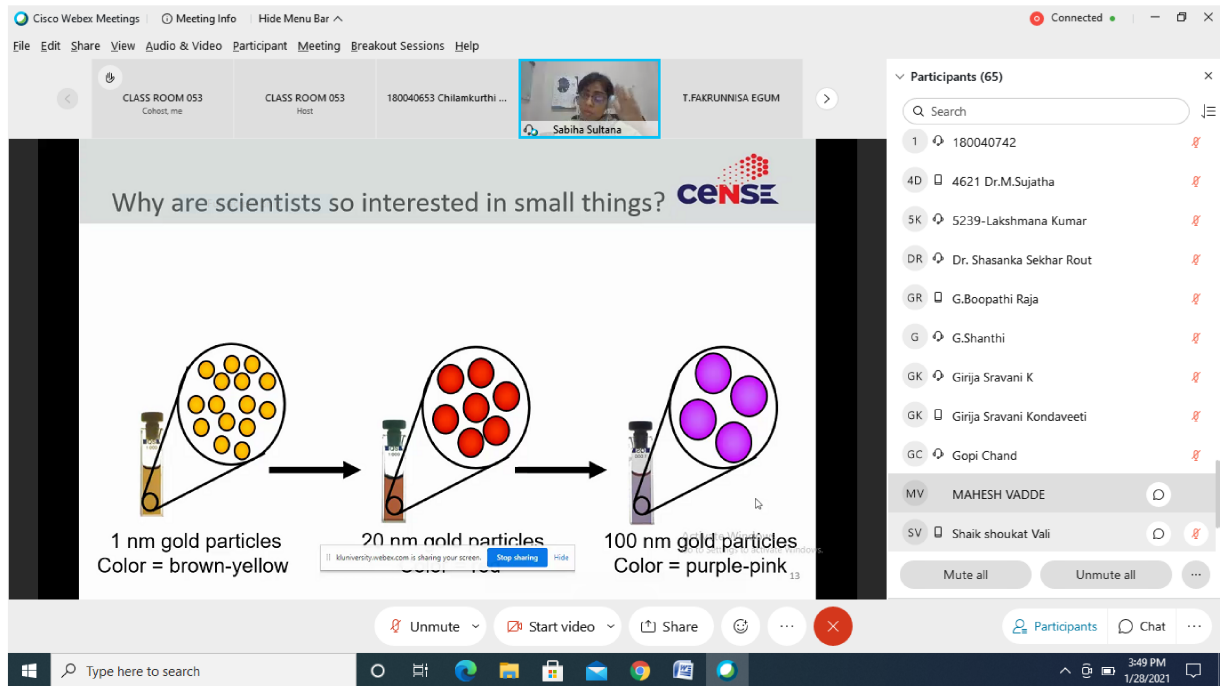
antenna.



Day-3 Screenshot of the online Meeting

#### Day 4: 28-01-2021 Thursday Forenoon

The speaker for afternoon session is Ms. Sabiha Sultana. The topic is "Introduction to Nano Technology and Nano Fabrication Technology". Session focused on grouping nanofabrication into three separate areas: thin films, lithography, and etching. Regarding thin films, physical vapor deposition methods such as evaporation; sputtering; and pulsed laser and chemical vapor deposition (CVD) such as low-pressure CVD, plasma-enhanced CVD, and atomic layer deposition are reviewed. Regarding lithography, the principles of contact mask lithography are discussed first, then ultraviolet (UV) projection lithography, and finally the more advanced systems used in the manufacture of integrated circuits such as deep-UV 193-nm and immersion lithography systems.



**Day-4 Screenshot of the online Meeting**

### **Day 5: 29-01-2021 Friday Forenoon**

The speaker for forenoon session is Dr. Nikhil Raj. The topic is “Low power analog circuits design techniques”. Session focused on Low voltage (LV) analog circuit design techniques in particular and technology considerations, transistor model capable to provide performance and power tradeoffs, low voltage implementation techniques capable to reduce the power supply requirements, such as bulk-driven, floating-gate, and self-cascode MOSFETs, basic LV building blocks.



## Koneru Lakshmaiah Education Foundation

(Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

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Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.

Phone No. +91 8645 - 350 200; www.klef.ac.in; www.klef.edu.in; www.kluniversity.in

Admin Off: 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2576129

**Ref: KLEF/RO/ECE/CIRCULAR**

**Date: 11-01-2019**

### CIRCULAR

**Sub:** Organizing event “Online Workshop” for the students of Electronics and Communication Engineering, of Vaddeswaram Campus of KLEF – Reg.

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This is to inform that the Department of Electronics and Communication Engineering, KLEF, is Organizing a “National Online Workshop on Recent Trends in Microelectronics, VLSI Circuits and their Applications” for the students of Electronics and communication Engineering, Vaddeswaram Campus of KLEF on, 25.01.2019, as details below:

Event Name: “National Online Workshop on Recent Trends in  
Microelectronics, VLSI Circuits and their Applications”

Date: 25.01.2019 - 29.01.2019

Venue: Online


#### **Meeting Link:**

<https://kluniversity.webex.com/kluniversity/j.php?MTID=m9216975af7045d8b8facf42f513024c2>

All the students of ECE, are invited to attend this program.

Dy-HOD's & Year coordinators are requested to bring this information to the attention of all ECE students and encourage them to participate in this program.

To  
All ECE Students,  
All ECE Faculty,  
Principal.

HOD  
  
Department of ECE  
K L University  
Green Fields, Vaddeswaram,  
Guntur Dist.A.P. PIN-522 502





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## List of Participants:

S. No.	University ID	Student Name	Degree
1.	190040007	AKELLA P.B. SRI KRISHNA SASTRI	ECE
2.	190040012	ALAPANA KRISHNA VAMSI REDDY	ECE
3.	190040042	BANDI NANDITHA	ECE
4.	190040049	BATTULA RAVI TEJA	ECE
5.	190040123	DOMMETI SAI RAMYA	ECE
6.	190040147	GOLLAPUDI V N S S R KOUNDINYA	ECE
7.	190040152	GORRE SAHITHI	ECE
8.	190040172	GURRALA JAHNAVI	ECE
9.	190040194	KALAPALA THANUSHA	ECE
10.	190040243	KOMMANABOYINA JYOTHI KIRAN BABU	ECE
11.	190040262	KOTA SIVA SWATHI	ECE
12.	190040305	MANDADAPU PUJITHA	ECE
13.	190040362	NARANDAS VIJAYA LAKSHMI	ECE
14.	190040378	P NITHIN	ECE
15.	190040389	PALLAPOLU VEERA VENKATA KALYANCHAKRAVARTHY	ECE
16.	190040394	PAMURU VISHAL REDDY	ECE
17.	190040472	SHAIK MASTAN VALI	ECE
18.	190040504	SWARNA RAMA VAMSI	ECE
19.	190040506	SYAMALA NAGA KOTI REDDY	ECE
20.	190040510	SYKAM NIKHITHA	ECE
21.	190040535	VADLA SREEDHAR	ECE
22.	190040571	VINUKONDA SRUTHI HASINI	ECE
23.	190040575	VYSHNAVI VUTUKURI	ECE
24.	190040579	YALAMARTHI JAYARAM PRADEEP	ECE
25.	190040587	YEMINENI CHAKRAVARTHI	ECE
26.	190040591	YERUVA NITESH KUMAR REDDY	ECE
27.	190040624	DODDI TARAKA RAVI RAJ	ECE
28.	190040625	PULLA ADITHYA VARDHAN	ECE
29.	190040660	BANDI PRANAYA KAVYA	ECE
30.	190040675	ROHIT RATHOD	ECE
31.	190049034	JAMMULA SURENDRA BABU	ECE
32.	180040021	CHITTURI. J.V.R.B.N.M.D.K.KIRITI	ECE
33.	180040022	GNANEDRA SAI CHILLA	ECE
34.	180040023	DHARANIDHAR KOMMERLA	ECE
35.	180040024	JONNADULA TEJA SREE VIJAY KUMAR	ECE



36.	180040025	GOLLAPALLI SAI GOUTHAM	ECE
37.	180040026	SUNDARAPU DHARMENDRA	ECE
38.	180040027	PALURU SYAM	ECE
39.	180040028	VADDESWARAM SHALIN RAJU	ECE
40.	180040029	VAJRALA VENKATESWARA REDDY	ECE
41.	180040030	VYSYARAJU JASWANTH RAJU	ECE
42.	180040031	SANAGALA KIRAN REDDY	ECE
43.	180040032	KADALI DURGA SRI RAM	ECE
44.	180040033	MEKA VENKATA SAI BABU	ECE
45.	180040034	NELLI NANI	ECE
46.	180040035	SRI SAI DURGESH PRASAD MUCHARLA	ECE
47.	180040036	BAGGU DAMODHAR RAO	ECE
48.	180040037	GORRELA DILEEP	ECE
49.	180040038	SINGAMSETTI NAGA MANIKANTA	ECE
50.	180040039	SHAIK NAYAB RASOOL	ECE
51.	180040040	BANDI NITHIN CHANDU	ECE
52.	180040041	DHARNASI RAJESH	ECE
53.	180040042	YENDURI SIVAPRASAD	ECE

**Convenors:**



Professor In-charge Professor  
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**HoD**



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