



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

One Week FDP On Emerging Trends in Electronics, Communication and Networking Technologies 25th – 29th October, 2021

The New Era of Information and Communication Technology have been enormously important developments in Electronics Communication and Networking Technologies .This will bring the researchers and technocrats from different parts of our country to a common gathering for exchanging and sharing knowledge about the recent developments in this area.

Objectives of the Programme:

- Latest innovations, trends, and challenges encountered in the different areas of electronics and communication, especially in the area of Spintronics, Opto electronics, Network-On-Chip design and Wireless Sensor networks.
- This FDP is devoted to fundamental theory, recent developments and research outcomes addressing the related theoretical and practical aspects of engineering applications in wide area.

Outcomes of the Programme:

- ❖ To provide an exposure to learn recent research and development in the area of Electronics, Communication and Networking Technologies from eminent experts from IITs/NITs and reputed institutions.
- ❖ To Gain practical approach with potential solutions to real time problems by designing industry aspects in Electronics domain.
- ❖ To understand novel issues and breakthroughs in the field of Electronics, Communication and Networking Technologies for engineering applications.

Day 1 (25th Oct 2021)

Topic : New age technologies for processing high strength alloys

Resource Person : **Dr.Swapnil Bhuktare**

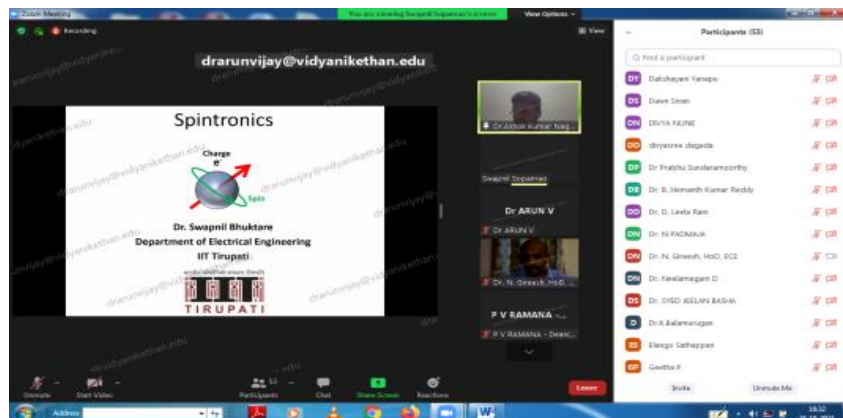
Assistant Professor

Department of Electrical Engineering,

Indian Institute of Technology Tirupati, India 517520.

The Day 1 session was started with formal inaugural address delivered by the professor and in charge Head of the department Dr.N.GIREESH garu and presidential address delivered by Academic Dean Dr. P.V.RAMANA garu. Later the resource person of the day Dr.Swapnil Bhuktare was introduced to the gathering and the session was handed over to the resource person for the following day. The resource person presented the recent advances in the development of Spintronics.

He summarized the importance of spintronics and its uses , controlling and manipulating an electron's spin within a molecule, cubits in quantum computing , the quantum version of the classic binary bit physically realized with a two-state device were presented and discussed.



- Finally, resource person discussed some of developments in spin transport and spin relaxation in semiconductors and metals of solid-state physics issues that are included in the fundamental research along with new technology being implemented in the electronic storage technology. Applications and future scope of Creation of spin polarization through optical or magnetic injection. Later participants were started their interactions with resource person and got clarified their doubts with respect to the day's session. The first day session was ended with formal thanks delivered by the program coordinator.

Day 2 (26th Oct 2021)

Topic : Recent Research Trends and Technologies

Resource Person : **Dr. SATHISH KUMAR SELVAPERUMAL**

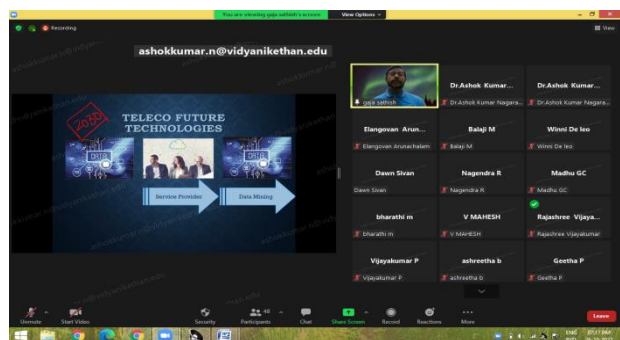
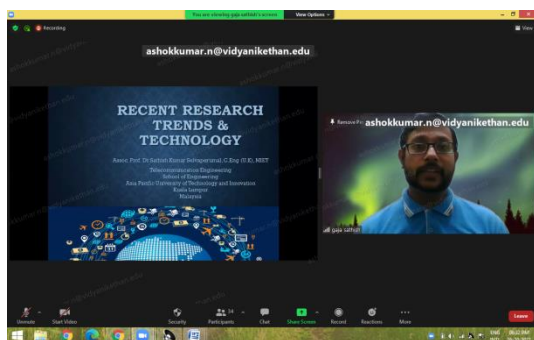
Associate Professor

Program Leader for Telecommunication Engineering

Asia Pacific University of Technology and Innovation (APU),
Kuala Lumpur, Malaysia.

Partner with De Montfort University (DMU), (U.K)

The Day 2 session resource person Dr. SATHISH KUMAR SELVAPERUMAL was introduced to the gathering by the program coordinators and the session was handed over to the resource person for the following day. The resource person explained the Recent Research Trends and Technologies.



The resource person explained that the Visions of Emerging Electronics Technologies include Nano electronics, artificial intelligence, smart and autonomous systems, cyber security, 5G, quantum computing, Silicon Carbide electronics, robotics, cognitive science, education, bioelectronics, printed electronics, gas sensing, Intelligent Process Automation(IPA), Tactile VR, Big Data Analytics, Human Augmentation, Trust architecture, Next-level process automation and virtualization Artificial Intelligence(AI), Future of clean technologies.

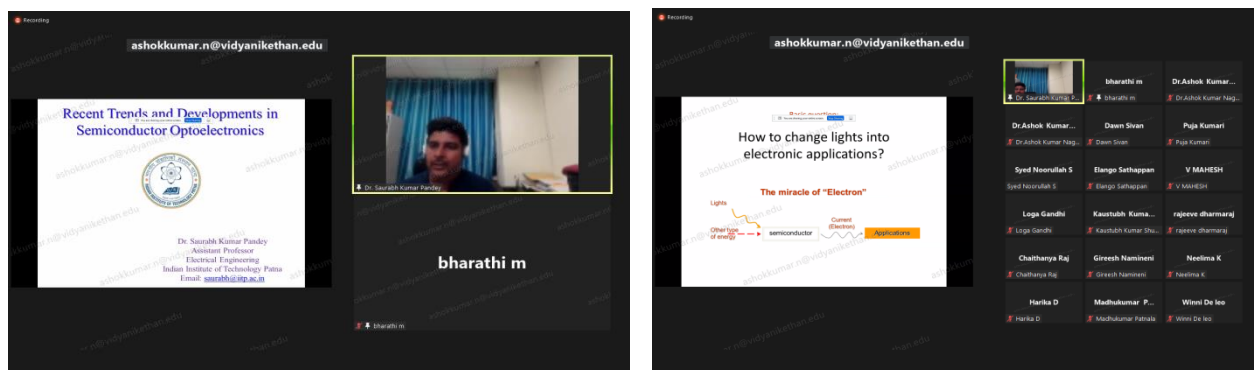
Later the resource person detailed about the research in new technology development, optimization, modeling/simulation, and understanding the industrial applicability in cross cutting technologies. With this end of the session, participants were allowed to have an interactions with resource person and got clarify with their doubts on the day's session. The second day session was also ended with formal thanks delivered by the program coordinator.

Day 3 (27th Oct 2021)

Topic: Recent Trends and Developments in Semiconductor Optoelectronics

Resource Person : **Dr. SAURABH KUMAR PANDEY**
Assistant Professor
Department of Electrical Engineering
Indian Institute of Technology Patna,
Bihta Pin – 801106, Bihar .

The Day 3 session resource person Dr. SAURABH KUMAR PANDEY was introduced to the gathering by the program coordinators and the session was handed over to the resource person for the following day. The resource person explained the evolution of Nano structures and also explained the wide range of materials associated with the process for various applications.



The resource person presented the detailed research on Three trends driving optoelectronics market growth, optical original equipment manufacturers of their terminal-active optical components EMS providers have become a major manufacturer of transceivers. As the optoelectronic package is a hybrid processor of both electronic and photonic signals, a plethora of unique materials are used in device fabrication. Contract optoelectronic component manufacturers with materials management supply chain and precision manufacturing competencies are realizing high-volume, cost-effective manufacturing for the complex components.

The resource person elaborated the ongoing efforts of electronics manufacturing services (EMS) providers and equipment suppliers towards the development of high-volume optoelectronic component manufacturing. With this the presentation came to an end and participants were allowed to have an interactions with resource person and got clarify with their doubts especially on the electronics manufacturing services (EMS) providers. The third day session was ended with formal thanks delivered by the program coordinator.

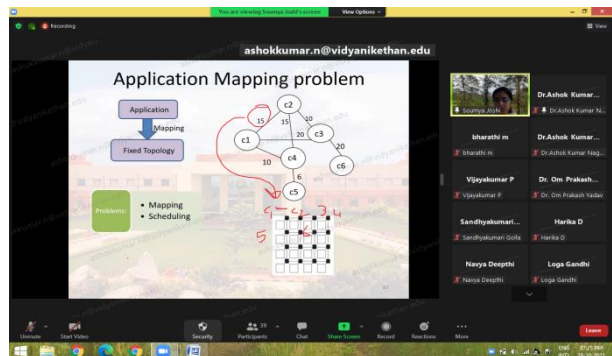
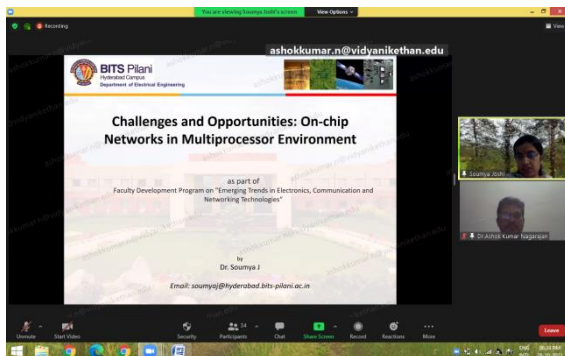
Day 4 (28th Oct 2021)

Topic: Challenges and Opportunities :On-Chip Networks in Multiprocessors Environment

Resource Person : Dr.SOUMYA J

Assistant Professor
Dept. of EEE BITS-Pilani,
Hyderabad Campus,
Hyderabad India-500078.

The Day 4 session resource person Dr.SOUMYA J was introduced to the gathering by the program coordinators and the session was handed over to the resource person for the following day. The resource person explained the current state of the art in accidental explosion modeling using methods based on Network-On-Chip design and related industries.



The resource person discussed the problems in terms of Networks-on-Chip (NoCs) lead to scalable connectivity for diverse applications with distinct traffic patterns and data dependencies and various applications in traditional NoCs—optimized and fixed at synthesis time—the interconnection nonconformity with the different applications requirements and limitations in the performance. NoC designs embraced the Software-Defined Networking (SDN) strategy to evolve into an adaptable interconnection solution for future chips and implemented strategy a partial Software-Defined Network-on-Chip (SDNoC) approach, both SDN and SDNoC concepts and architectures. We observe that works in the literature employed an uncomplete layered SDNoC approach. This fact creates various fertile areas in the SDNoC architecture where researchers may contribute to Many-Core SoCs designs.

The resource person described the challenges in marrying network and VLSI technologies are in leveraging the essential features of networking that are crucial to obtaining fast and reliable on-chip communication with recent case studies and participants were allowed to have an interactions with resource person and got clarify with their doubts on the day's session. Later the fourth day session was ended with formal thanks delivered by the program coordinator.

Day 5 (29th Oct 2021)

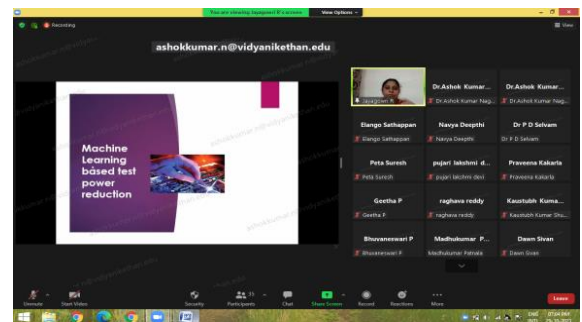
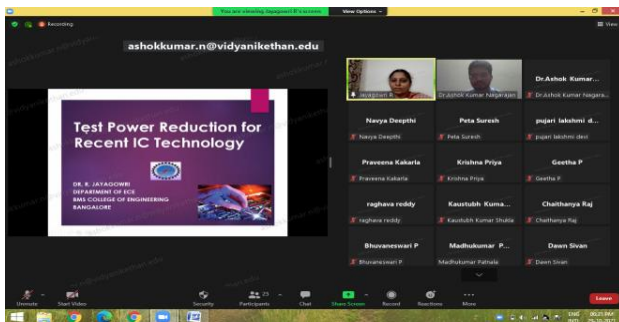
Topic : Total Power Reduction for Recent IC Technology

Resource Person : Dr. R.Jeyagowri

Associate Professor

Department of ECE, BMS College of Engineering, Bengaluru

The Day 5 session resource person Dr. R.Jeyagowri was introduced to the gathering by the program coordinators and the session was handed over to the resource person for the following day. The resource person explained the need for the development of technologies with renewable energy sources in order to overcome the increasing demand–supply energy gap related to VLSI Technologies.



The resource person explained about power reduction techniques in IC technologies further she added that recent technologies adaptation with less power utilization mechanisms in VLSI. She insisted that power dissipation techniques of static, dynamic and short circuit power dissipation in advanced architecture level. .

The resource person made a detailed discussion about analysis based low power design methodologies in IC fabrication levels also ASIC and FPGA based power reduction technologies and its application level. With this end of the session, participants were allowed to have an interactions with resource person and got clarify with their doubts on the day's session. Later participants are invited to share their feedback on entire one week FDP followed with vote of thanks delivered by P.Geetha, Associate Professor with this the last day session was ended successfully.