SANDIP UNIVERSITY

Electrical and Electronic Engineering
Department School of Engineering
& Technology
Academic Year 2023-24

Report

Expert Talk – Emerging Technologies in Electronics

1. **Event Title:** Expert talk by Dr. Mangesh D. Nikose on **"Emerging Technologies in Electronics"** for First Year B.Tech. Engineering students as Induction Programme.

2. **Event Date:** 07th AUG 2023

3. **Event Conduction Duration:** 10:00 AM to 12:00 PM

4. **Event Mode:** Offline
5. **Event Resource Person Details:**

Dr. Mangesh D. Nikose,
HOD & Associate Professor, EEED,
SOET, SUN, Nashik

6. **Name of Event Coordinator with contact details:**

Mr. Harshal Chaughule, Asst. Professor, EEED, SOET

Report Prepared By : Mr. Yogesh Kahandal ,TA , EEED, SOET

7. **Event Outline & Outcome of the event:**

Objective of Program:

.

Emerging technologies can be powerful tools to help companies solve business problems, scale on demand, improve resiliency and deploy technology solutions rapidly and securely.

The resulting definition identifies five attributes that feature in the emergence of novel technologies. These are: (i) radical novelty, (ii) relatively fast growth, (iii) coherence, (iv) prominent impact, and (v) uncertainty and ambiguity.

Robotics and AI will also have a larger role in our world, making systems smarter, faster and more efficient." The best way to keep up with electronics is to always research the latest components, devices and trends. Suppliers should regularly research what consumers want

Bioelectronic devices and systems are being created to tackle major medical disorders such as epilepsy, motor-neuron disease and pain. We work with academic and clinical groups to

record electrical signals from brain cells measured in micro-volts. We make implants, combined with microelectronic circuits to create systems that monitor both central and peripheral nervous systems.

Silicon Carbide electronics finds applications in hostile environments, including space, high temperatures and in power electronics where it will reduce carbon emissions. We fabricate MOSFETs with very high performance, by using nanoscale interface oxides.

We also have world-leading expertise in **printed electronics** for next-generation of electronic devices and systems (also called the Internet of Things, IoT). The IoT revolution puts a focus upon flexible, low power and wearable devices. Our research is focused on 2D or layered materials, a promising new area for printed electronics. We work with nanosheet inks for the design and fabrication of LEDs, solar cells, supercapacitors, sensors and antennae, among others.

Our expertise also includes gas sensing devices using catalytic metal oxide and 2D nanoparticles as a functionalization layer of graphene-based sensors. We work on the design of low-power sensors for large-scale sensing networks for commercial applications.

Electronic and information technology includes computer hardware and software, operating systems, web-based information and applications, telephones and other telecommunications products, video equipment and multimedia products, information kiosks, and office products such as photocopiers and fax machines. Electronics is often considered to have begun with the invention of the triode. Within 10 years, the device was used in radio transmitters and receivers as well as systems for long distance telephone calls. The invention of the triode amplifier, generator, and detector made audio communication by radio practical.

Output of Program:

Technology lends immense support in automating various tasks, setting up reminders, communicating efficiently, paying bills at the click of a button, and shopping for the simplest things, such as groceries to investing in valuable assets right in the comfort of our homes.

In a world driven by digital solutions, emerging technologies continue to affect the way we live, work, and interact with one another. Many of these technological changes are great: they increase our productivity, make the services we need more accessible, and, overall, make our lives easier.

The supportive role of the electronics sector in providing equipment and components for other industries is also a factor of growth as consumers demand more automobiles, energy-efficient homes, and medical technologies. electronics, Branch of physics that deals with the emission, behaviour, and effects of electrons and with electronic devices. The beginnings of electronics can be traced to experiments with electricity. I

What are the 7 benefits of technology?

Take a look:

Faster access to information. ...

Wider variety of learning materials. ...

Increases the scope for distance learning. ...

Eases teaching methods. ...

Improves learners' communication skills in schools. ...

Makes studying enjoyable. ...

Helps learners to acquire new skills and knowledge.

Emerging technologies are shaping the future of engineering and making it more dynamic, efficient, and innovative. Engineers are at the forefront of adopting and developing emerging technologies, and it's important for them to understand their potential applications and implications for various industries.

Here are some reasons why emerging technology is so important for engineers:

1. Advancing Technological Progress: Engineers are responsible for designing and developing innovative solutions to complex problems. Emerging technologies provide new tools and techniques that can be applied to engineering projects, making them more efficient, effective, and sustainable.

2. Meeting Customer Needs: Emerging technologies are often developed in response to emerging needs and problems. As such, engineers must stay informed about the latest trends and technologies to meet customer needs and stay competitive in their respective industries.

3. Addressing Emerging Challenges: Emerging technologies often provide solutions to new or emerging challenges. For instance, advances in robotics and automation are helping to address the global labor shortage and improve efficiency in manufacturing and logistics.

4. Enhancing Creativity and Innovation: Exposure to emerging technologies can spark creativity and innovation in engineers. By learning about new technologies and their potential applications, engineers can find new ways to solve problems and create value for their customers.

5. Improving Efficiency and Productivity: Emerging technologies can improve efficiency and productivity in engineering projects. For example, using 3D printing technology can speed up the prototyping process and reduce the time and cost of developing new products.

Examples of Emerging Technologies for Engineers

Here are some of the emerging technologies that engineers should pay attention to:

1. Artificial Intelligence (AI): AI is transforming various industries, including engineering. Engineers can use AI to analyze data, make predictions, and optimize processes, among other things.

2. Internet of Things (IoT): IoT devices are becoming increasingly popular in various applications, including industrial automation, transportation, and smart homes. Engineers can leverage IoT to improve efficiency, reduce costs, and create new products and services.

3. Augmented Reality (AR) and Virtual Reality (VR): AR and VR technologies can be used in various engineering applications, such as training, design, and prototyping. They enable engineers to simulate real-world environments and test their designs in a virtual environment before building a physical prototype.

4. Blockchain: Blockchain technology can be used to secure data and transactions in various engineering applications, such as supply chain management and logistics.

5. Robotics and Automation: Robotics and automation are transforming manufacturing and logistics industries by enabling the creation of intelligent machines that can perform tasks autonomously.

Conclusion

In conclusion, emerging technologies are critical for the future of engineering. Engineers must stay informed about the latest trends and technologies to meet customer needs, address emerging challenges, and stay competitive in their respective industries. By adopting emerging technologies, engineers can enhance creativity, innovation, efficiency, and productivity, and contribute to advancing technological progress.

Number Students Attended: 350

8. <u>Event photos:</u>