

## Activity Report

Academic Year	2023-24
Program Driven by	7 Demonstration of Emerging Trends in Electronics Engineering
Quarter	I
Program / Activity Name	7 Demonstration of Emerging Trends in Electronics Engineering
Program Type	7 Demonstration of Emerging Trends in Electronics Engineering
Program Theme	Innovation
Start Date	04-09-2023
End Date	07-09-2023
Duration of the Activity (in Mins)	600
Number of Student Participant	50
Number of Faculty Participant	4
Number of external Participant	--
Expenditure Amount in Rs.	
Any Remark	--
Mode of Session Delivery	Offline
Objective	To show advance trends and technology in Electronics Engineering
Benefit in terms of Learning / Skills / Knowledge obtained	Student are focused toward advance technology create and improve systems to benefit society. Smartphones, for instance, have revolutionised the way we communicate, electrical systems in medical equipment allow us to monitor patients more effectively, and the electronics in security systems allow us to feel more secure.
Feedback	Good
Video url (mp4)	
Photograph 1 (jpg)	Attached
Photograph 2 (jpg)	Attached
Overall report of the Activity (pdf)	As given below

### Overall report of the Activity

The electronics manufacturing industry is undergoing rapid transformation, driven by technological advancements, changing consumer demands, and a growing focus on sustainability. As we move into the future, several key trends are shaping the landscape of electronics manufacturing. We will explore some of the most promising trends that are set to revolutionise the industry and pave the way for a more efficient, connected, and sustainable future.

Following points are discussed under program by different faculty

#### **Internet of Things (IoT) and Industry 4.0**

The Internet of Things (IoT) is increasingly becoming a cornerstone of electronics manufacturing. IoT-enabled devices are revolutionising the way products are designed, manufactured, and utilised. By incorporating sensors and connectivity into devices and machinery, manufacturers gain real-time insights into production processes, enabling predictive maintenance, reducing downtime, and improving overall efficiency. Additionally, Industry 4.0 principles, including automation, artificial intelligence, and data analytics, are driving smart factories that optimise production, resource allocation, and quality control.

#### **Advanced Materials**

The semiconductor industry has long relied on silicon, but as demands for faster, more efficient circuits grow, the need for innovation has become evident. Enter the era of advanced materials, where startups and scaleups are exploring silicon alternatives such as gallium nitride (GaN) and other semiconductor materials like graphene and nanocarbon composites. These materials promise higher performance and efficiency, unlocking new possibilities in electronics manufacturing.

#### **Circuit Packaging and Flexible Electronics**

Every passing year brings advancements in circuit packaging, resulting in ever smaller chips that integrate an increasing number of functions. This progress is a response to the growing demand for flexible and customisable embedded systems.

While flexible electronics enable innovative applications like bendable displays, wearables, and rollable screens. These trends not only improve user convenience but also open up new possibilities in sectors such as healthcare, and pave the way for enhanced user experiences and cutting-edge applications.

## **Printed Electronics and Additive Manufacturing**

Two technologies, in particular, are garnering significant attention in the electronics manufacturing arena. Printed electronics, which involve the deposition of electronic components onto various substrates, are gaining traction due to their cost-effectiveness and adaptability. These technologies facilitate the creation of flexible, lightweight devices.

Additive manufacturing, also known as 3D printing, is revolutionising the way prototypes and small-batch productions are created. This technology enables rapid prototyping, reducing development time and costs. Moreover, 3D printing facilitates the creation of complex geometries and customisable components, enabling greater design freedom. As technology advances, electronics manufacturers are exploring the potential of 3D printing for producing functional electronic devices and even circuits.

## **Organic and Sustainable Manufacturing**

Sustainability has become a top priority for the electronics manufacturing industry. As global awareness of environmental issues grows, consumers are demanding eco-friendly products and responsible manufacturing practices. Electronics manufacturers are responding by adopting sustainable sourcing of materials, reducing waste through recycling initiatives, and embracing energy-efficient production processes. Additionally, design-for-environment principles are being integrated into product development to create greener and more sustainable devices.

Organic electronics represent a transformative leap in the world of inorganic electronics. This emerging technology utilises carbon-based compounds to create flexible, lightweight, and even biodegradable electronic components. From flexible displays to bioelectronic sensors, organic electronics offer massive advantages over

traditional inorganic counterparts, leading to more sustainable and innovative devices.

On the behalf of SSBT's College of Engineering and Technology and all faculty and students Thanks to IIC and the Team to provide such a wonderful platform for our college to organize the program for Exposure and field visit for problem identification.




Coordinator

Dr. P. H. Zope






 GPS Map Camera



**Bambhori Pr. Chandsar, Maharashtra, India**  
21°00'53.6"N 75°30'10.7"E, Bambhori Pr. Chandsar,  
Maharashtra 425002, India  
Lat 21.014904°  
Long 75.50302°  
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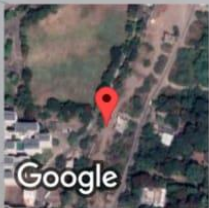


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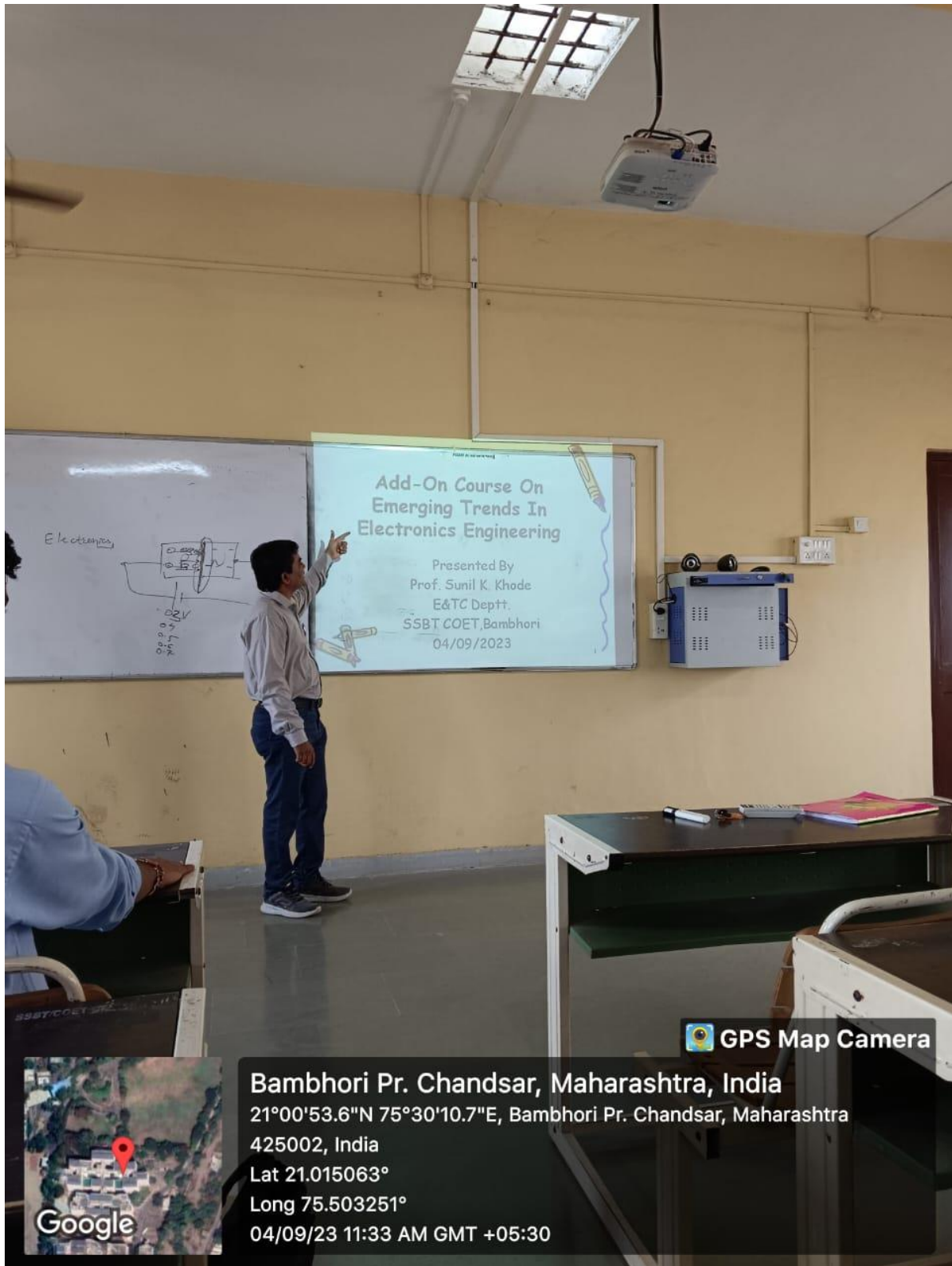
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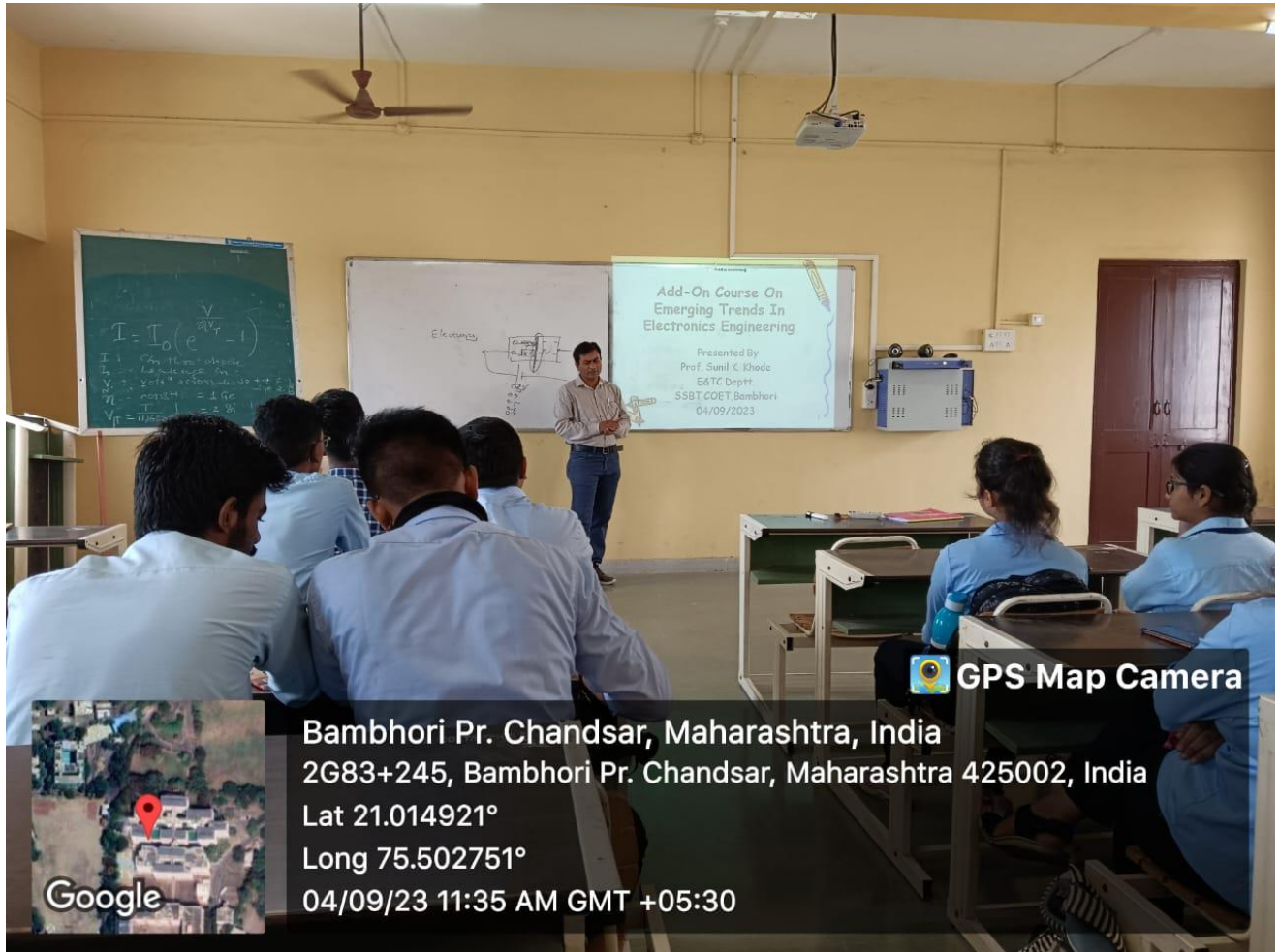
















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