

Date: 31/01/19

Title: Solar cell & its uses in our daily life.

* This seminar report provides an overview of what solar cells are, the generations of solar cell, technology, working of solar cells & its applications etc.

Introduction:-

Solar cell is an electronic device that converts light energy into electrical energy by the photovoltaic effect. It is basically a PN Junction diode. When light incident on the solar cell, it produces both current & voltage to generate electric power. Assemblies of solar cells are used to make solar modules which are used to capture energy from sunlight. When multiple modules are assembled together, the resulting integrated group of modules all oriented in one plane is referred as a solar panel.

Applications of solar cell:-

- Rural electrification
- Water pumping
- Health care
- Lighting
- Electric power generation in space.
- Professional applications.
 - Telecommunication system
 - Ocean navigation aids
 - Remote monitoring & control
 - Cathodic protection

Uses in our daily life:-

- Solar cells are used as
- Solar powered pumps
- Solar water heaters
- Solar cookers
- Solar powered exhaust fans
- Pocket calculator
- For outdoor lighting

New developments of solar energy:-

- Use of nanomaterials to increase the efficiency of solar cells.
- Development of transparent solar panels that can be integrated into windows & other building materials.
- Perovskite solar cells are a breakthrough innovation which is more efficient alternative to traditional silicon cells.

Conclusion:-

Solar energy is a renewable energy source, does not produce green house gas emissions or other harmful pollutants. It has the potential to revolutionise the way we power our homes, business & cities. It is cost effective, versatile & reliable.

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Date: 27/1/2020

Table:-

Nanotechnology & its practical use for society.
This seminar topic aims to provide a comprehensive overview of nanotechnology, exploring the latest advancements, its applications & potential impacts on society.

Our distinguished speakers delivered the diverse areas of nanotechnology, from nanomedicine & nanoelectronics to nanomaterials & nanoscale manufacturing as well as its practical uses for society.

Introduction:-

Nanotechnology is a field of science & engineering that focusses on the design & manufacture of devices & structures at the nanoscale, which is about 1 to 100 nm in size. It involves integrating engineering with biology, chemistry & physics.

Practical use of nanotechnology for society:-

- In medicine: Diagnosis & Therapy.
- In Energy harvesting & storage
- In Agriculture: Enhancing crop production.
- In cosmetics: Formulations & applications
- Nanosensors for environmental monitoring
- Nanomaterials for solar cells & photovoltaics
- Nanotechnology in water treatment & purification

Aims & objectives:-

Nanotechnology aims to develop & implement innovative technologies in various fields such as medicine, electronics, automation & robotics, biomedical engineering, solar cells, agriculture & energy production.

Conclusion :-

~~Nanotechnology aims to develop & implement~~
Nanotechnology is a multidisciplinary scientific field. It has the potential to improve agriculture production, pharmaceutical quality, occupational health, food safety, medical diagnosis & treatment. It offers the opportunity to create functional materials & devices with unique properties at the nanoscale, with applications in various fields & the potential for future advancements.

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29.01.2022

Title:-

Maxwell's equations and its application.

This seminar topic aims to provide a comprehensive overview of Maxwell's equations exploring the latest advancements and its applications by describing how electric & magnetic field propagate, interact and how they are influenced by objects.

Introduction:-

Maxwell's equations are four partial differential equations that form the foundation of electromagnetic field theory. They govern electric and magnetic fields and describe how they change over time. The equations provide a mathematical model for electric, optical and radio technology such as power generation, electric motors, wireless communication radar etc.

Application:-

- Antennas used to receive electromagnetic signals.
- MRI scanners in hospitals.
- Electricity generation.
- Transmission lines
- Magnetic tape.
- The ceiling fan capacitor works on displacement current.

Conclusion:-

Maxwell's equations are some of the most important equations in physics because of their incredible impact on many technologies, including phones, computer chip; design, wireless technology oil exploration, remote sensing, inter galactic signals, radio astronomy and more.

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Date: 30.01.2023

Title:-

Digital and analog circuits in electronics.

This seminar topic aims to provide a comprehensive overview of understanding of analog and digital circuits, its characteristics, concepts, differences between digital and analog circuits and their applications.

Our distinguished speakers delivered the diverse areas of applications of digital & analog signals in electronics and their advantages and disadvantages.

Introduction:-

In electronic design, an analog circuit is one that uses voltage or current levels that vary continuously with time to represent signal amplitude where as the digital circuits use a discrete set of signal levels, usually two voltage or current that represent signal amplitudes. Analog electronics can be used to amplify signals, filter noise and perform a wide variety of other functions where as digital electronics use discrete signals to represent and process information.

Analog signal applications:-

- Audio recording and reproduction.
- Temperature sensors.
- Image sensors.
- Radio signals.
- Telephones.
- Control systems.

Digital signal applications:-

- Communication systems.
- Networking and data communications.
- Digital interfaces for programme ability.

Conclusion:-

This topic introduces the basic concepts of analog and digital signals, how they differ in representing data, noise, immunity, band width, requirements, complexity and accuracy.

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