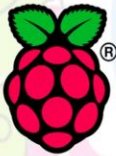


# SYNCOM

## NEWS LETTER OF E.C.E

Voice of Electronics and Communication Engineering

June 2020, Volume.05 Issue.06



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**KITS** KKR & KSR INSTITUTE OF  
TECHNOLOGY & SCIENCES



## VISION, MISSION & PEO'S

### Vision

Developing highly Qualitative, Technically Competent and Socially Responsible Engineers.



### Mission

To provide quality education in the domain of Electronics and Communication Engineering through

- Enriched curriculum for addressing the needs of Industry.
- Effective teaching learning processes through congenial environment.
- Gaining contemporary knowledge through research, development, curricular, co and extra-curricular.



### ECE Program Educational Objectives

Graduates of Electronics & Communication Engineering Shall

**PEO1:** Develop a strong background in basic science and mathematics and ability to use these tools in their chosen fields of specialization.

**PEO2:** Have the ability to demonstrate technical competence in the fields of electronics and communication engineering and develop solutions to the problems.

**PEO3:** Attain professional competence through life-long learning such as advanced degrees, professional registration, and other professional activities.

**PEO4:** Function effectively in a multi-disciplinary environment and individually, within a global, societal, and environmental context.

**PEO5:** Take individual responsibility and to work as a part of a team towards the fulfillment of both individual and organizational goals.

The institute is a symbol of egalitarian outlook without discretions. KITS student activity council is organized exclusively by students with representatives from various disciplines stands for the advocacy of democracy and leadership opportunities provided by the institute.. **KITS imparts Outcome Based Education (OBE)** which gives equal opportunities to teaching and learning curricular, co-curricular and extra-curricular activities

# Faculty Development Program

ECE department conducted a national level five day online faculty development programme on “**Introduction to Renewable Energy Sources**” from 20<sup>th</sup> to 24<sup>th</sup> June 2020.

This FDP aims at providing a forum for members of the research and academic community to give awareness on Introducing Renewable Energy Sources to develop the utilization skills of faculty. Each session is enriched with the well experienced resource person who has great skill set in Renewable Energy Sources and The following topics are focused in our Faculty Development Program.

- Introducing Renewable Energy Sources
- Dye Sensitized Solar Cells
- Quantum Dot Sensitized Solar Cells
- Perovskite Solar Cells
- Silicon Solar Cells.

## **Introducing Renewable Energy Sources:**

The most popular renewable energy sources currently are:

1. Solar energy.
2. Wind energy.
3. Hydro energy.
4. Tidal energy.
5. Geothermal energy.
6. Biomass energy.

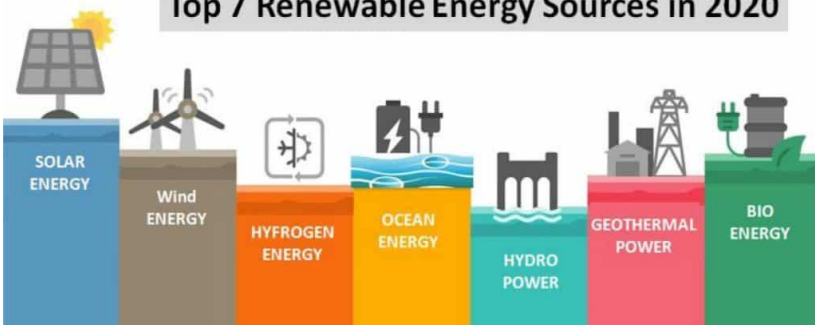
## **Dye Sensitized Solar Cells:**

A dye-sensitized solar cell (DSSC, DSC, DYSC or Grätzel cell) is a low-cost solar cell belonging to the group of thin film solar cells. It is based on a semiconductor formed between a photo-sensitized anode and an electrolyte, a photoelectrochemical system.

## **Quantum Dot Sensitized Solar Cells:**

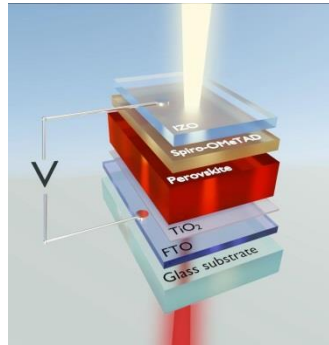
Quantum Dot Sensitized Solar Cells are considered as the potential third generation solar cells due to their suitable optoelectronic properties for photovoltaic response. ... Quantum dot sensitized solar cells are showing power conversion efficiencies up to 12%, very close to its counterpart dye sensitized solar cells.

## Top 7 Renewable Energy Sources in 2020



### Perovskite Solar Cells:

A perovskite solar cell (PSC) is a type of solar cell which includes a perovskite structured compound, most commonly a hybrid organic-inorganic lead or tin halide-based material, as the light-harvesting active layer. Perovskite materials, such as methylammonium lead halides and all-inorganic cesium lead halide, are cheap to produce and simple to manufacture.



### Silicon Solar Cells:

Solar cell, or photovoltaic cell, is an electrical device that converts the energy of light directly into electricity by the photovoltaic effect, which is a physical and chemical phenomenon. It is a form of photoelectric cell, defined as a device whose electrical characteristics, such as current, voltage, or resistance, vary when exposed to light. Individual solar cell devices are often the electrical building blocks of photovoltaic modules, known colloquially as solar panels. The common single junction silicon solar cell can produce a maximum open-circuit voltage of approximately 0.5 to 0.6 volts.



## *Faculty Development Program*

ECE department conducted a national level five day online faculty development programme on “**Recent Trends in Communication and Wireless Networks**” from 05<sup>th</sup> to 09<sup>th</sup> June 2020.

The following topics are focused in our Faculty Development Program.

- Next Generation Wireless Communication
- 5G Based Cognitive Radio
- OWC for High-speed Connectivity
- 5G for mobile application
- 5G Communication for IoT Applications

Next-generation wireless contains the thought that the next generation of wireless communications will be a main move toward global wireless communications systems and seamless high-quality wireless services. This presents the concepts and technologies involved, including possible innovations in architectures, spectrum allocation, and utilization, in radio communications, networks, and services and applications.

The fifth Generation (5G) of wireless communication principles and Cognitive radio (CR) are alleged to be the clarification for present day data intensive applications. The 5G wireless networks are expected to provide higher data transfer rates, ubiquitous connectivity, low end-to-end latency, much higher system capacity and improved energy efficiency.

Optical wireless communications (OWC) is a form of optical communication in which unguided visible, infrared (IR), or ultraviolet (UV) light is used to carry a signal.

OWC systems operating in the visible band (390–750 nm) are commonly referred to as visible light communication (VLC). VLC systems take advantage of light emitting diodes (LEDs) which can be pulsed at very high speeds without noticeable effect on the lighting output and human eye. VLC can be possibly used in a wide range of applications including wireless local area networks, wireless personal area networks and vehicular networks among others.[1] On the other

hand, terrestrial point-to-point OWC systems, also known as the free space optical (FSO) systems,[2] operate at the near IR frequencies (750–1600 nm). These systems typically use laser transmitters and offer a cost-effective protocol-transparent link with high data rates, i.e., 10 Gbit/s per wavelength, and provide a potential solution for the backhaul bottleneck. There has also been a growing interest on ultraviolet communication (UVC) as a result of recent progress in solid state optical sources/detectors operating within solar-blind UV spectrum (200–280 nm). In this so-called deep UV band, solar radiation is negligible at the ground level and this makes possible the design of photon-counting detectors with wide field-of-view receivers that increase the received energy with little additional background noise. Such designs are particularly useful for outdoor non-line-of-sight configurations to support low power short-range UVC such as in wireless sensor and ad-hoc networks.

**KITS** KKR & KSR INSTITUTE OF TECHNOLOGY & SCIENCES  
(Approved by AICTE, New Delhi/Affiliated to JNTUR, Accredited by MAAC 'A' Grade & NBA Accreditation for all Departments)

**Department of Electronics & Communication Engineering**  
 A NATIONAL LEVEL FIVE DAY ONLINE FACULTY DEVELOPMENT PROGRAMME  
 ON  
**"RECENT TRENDS IN COMMUNICATION AND WIRELESS NETWORKS"**  
 5th - 9th JUNE 2020 2:30 P.M - 4:30 P.M



**Mr. Ayush Kumar Dwivedi** On  
5th  
 IIIT Hyderabad  
 Topic: Next Generation Wireless Communication



**Dr. S.Sasipriya** On  
6th  
 Sri Krishna college of Engineering and Technology,Coimbatore  
 Topic: 5G Based Cognitive Radio



**Mr. K Vinod Kiran** On  
7th  
 NIT Rourkela  
 Topic: Optical Wireless Communication (OWC)  
 for High-Speed Connectivity



**Dr. Velmani Ramasamy** On  
8th  
 HOD,Siddhartha Institute of Technology and Sciences,Hyderabad  
 Topic: 5G for Mobile Communication



**Mr. Ravi Sekhar Yarrabothu** On  
9th  
 Head,Keysight COE, Vignan University  
 Topic: 5G Communication for IoT Applications

Registration link:[www.tinyurl.com/kitsecfdp1](http://www.tinyurl.com/kitsecfdp1)  
 Last Date Of Registration : 4th June 2020 No Registration Fee

Convenor: Dr. Sk. Sadulla, Professor & Head  
 E-mail: [kitsece2020@gmail.com](mailto:kitsece2020@gmail.com)  
 Phone: 7382153446,9912324038



## *Faculty Achievements:*

- **Prof.K.Madhusudan Rao** attended a program Role of Online Teaching Pedagogy and ICT tools in Outcome Based Education on 25-06-2020 Online FDP by KKR & KSR Institute Of Technology and Science,Guntur
- **Prof.K.Madhusudan Rao** attended a program Python for Researchers from 29-06-2020 to 30-06-2020 in Online FDP by MNR College of Engineering & Technology,Fasalwadi, Sangareddy.
- **Prof.K.Madhusudan Rao** attended a program Recent Trends and Research Areas in Applied VLSI and Advanced Communications from 08-06-2020 to 12-06-2020 in Online FDP by VVIT- Namburu
- **Prof.K.Madhusudan Rao** attended a program Recent Trends in Communication and Wireless Networks from 05-06-2020 to 09-06-2020 in Online FDP by KKR & KSR Institute Of Technology and Science,Guntur
- **Prof.K.Madhusudan Rao** attended a program Overview of AI&ITS Applications in Speech Processing from 01-06-2020 to 05-06-2020 in Online FDP by Chebrolu Engineering College , Chebrolu
- **Prof.K.Madhusudan Rao** attended a program Advancements in Signal Processing & Optimization Techniques from 03-06-2019 to 07-06-2019 in FDP by KKR & KSR Institute Of Technology and Science,Guntur.
- **Prof.V.Murali Krishna** Attended a program on Intellectual property rights & patent filing on 20-06-2020 in Online Webinar Rajarajeswari college of Engineering, Bengaluru
- **Prof.V.Murali Krishna** Attended a program on Quantum Computing from 15-06-2020 to 19-06-2020 in Online FDP AICTE Training And Learning (ATAL) Academy
- **Prof.V.Murali Krishna** Attended a program on 6th International Yoga Day celebrations on 21 June 2020 at NSS Unit, KKR & KSR Institute of Technology & Sciences, Guntur, Andhra Pradesh
- **Dr.Khamuruddeen** Published an invention on Device trangely Detect and Control Cyber Crime Device on 07/06/2019.
- **Dr.M.Vasim Babu** attended a Online FDP on Internet Of Things and Artificial Intelligence Applications from 01.06.2020-

06.06.2020 in Online mode organized by KL deemed to be University,vijayawada

- **Dr.M.Vasim Babu** attended a online FDP on Tools for scientific communication and effective teaching from 02.06.2020-06.06.2020 in Online FDP organized by Vaagdevi college of engineering,Warangal
- **Dr.M.Vasim Babu** attended a online FDP Programme on Data Analytics from 15.06.2020-19.06.2020 in Online mode organized by NIT, Andhra Pradesh.
- **Mr.M.Sudhir** attended a FDP Recent Trends in Communication and Wireless Networks from 05-06-2020 to 09-06-2020 at KKR & KSR Institute of Technology & Sciences, Guntur, Andhra Pradesh – 522017
- **Mr.A.Sarath** attended a FDP on National Level Online FDP on "Introduction to Renewable Energy Sources "(FDP)from 20-06-2020 to 24-06-2020.
- **Mr.A.Sarath** attended a FDP Recent Trends on RF and Its Applications(FDP) from 26-06-2020 to 30-06-2020
- **Mr.A.Sarath** attended a FDP Attended Research Challenges and Emerging Trends in ECE(FDP) from 27-05-2020 to 01-06-2020.
- **Mr.T.Bala Krishna** attended a FDP on Recent Trends in Communication and Wireless Networksfrom 05-06-2020 to 09-06-2020 at KKR & KSR INSTITUTE OF TECHNOLOGY AND SCIENCES.
- **Mr.T.Bala Krishna** attended a FDP on Role of Online Teaching Pedagogy and ICT tools in outcome based Education on 25-06-2020 at Department of CE, KKR & KSR Institute of Technology & Science
- **Mr.T.Bala Krishna** attended a FDP on Introduction to Renewable Energy Sources from 20-24 June 2020 at Department of ECE & ME, KKR & KSR Institute of Technology & Sciences.
- **Mrs.T.Bhavani** attended a FDP on Advancements in Signal Processing and Optimization Techniques from 3-7 JUNE 2019at E&ICT Academy ,IIT Roorkee.
- **Mr.P.Ashok Babu** Attended a FDP on "Robotic Process Automation and its allied Machine Learning Techniques" from 5th june 2020 at DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING