



**Muthoot**  
**Institute of Technology & Science**

# RESONANCE

NEWSLETTER JULY-SEPT 2018

## Department of Electronics & Communication Engineering

### VISION

To be globally recognised for excellence in electronics and communication engineering education and research through value-based resource integration.

*"If you want to shine like a sun, first burn like a sun."*

- APJ ABDUL KALAM

### MISSION

**M1:** To nurture professionals who are capable of engineering solutions that enhanced the quality of life as per the needs of the society.

**M2:** To provide an ambience for freethinking and innovation.

**M3:** To strive for a high-yielding collaboration with industry and institutions of repute.

**M4:** To launch students successfully into one of a variety of careers offering lifelong learning, service and leadership.

### DEPARTMENT ACTIVITIES

#### INTRODUCTION TO LATEX

A training program on "Latex documentation" was held for 3rd and 7th semester students. Its aim was to introduce Latex and beamer, so as to prepare technical documents and presentation slides. The course was held on 3rd July 2018 for 7th semester students and for the 3rd semester students on 9th and 12th July 2018. The faculty members of ECE dept, Dr. Abhilash Antony (HOD) and Ms. Namitha A. S handled the course.

#### DEEP LEARNING FOR COMPUTER VISION

A one day course titled "Deep Learning for computer vision" was conducted by Dr. Dilip Mathew Thomas, Adjunct Faculty, CSE dept. on 6th July 2018 for the 3rd semester students. The primary purpose of this session was to provide students with an introduction to the field of deep learning and its applications in computer vision.

#### CURRENT AFFAIRS

A one day class on current affairs was conducted by Ms. Namitha A.S & Dr. Arunkant A. Jose on 4th July 2018 for the 3rd and 7th semester students of the department. The primary purpose of this course was to provide students with an insight into the Current Affairs. Acquire a deeper understanding about Scientific and environment related current Affairs.

## EMBEDDED SYSTEM DESIGN AND IOT



A five day training program titled “Hands-on course on Embedded system design and IOT” was offered to 7th and 3rd semester students of the department from 17th July 2018 to 21st July 2018. The sessions were handled by faculty members of the department, Mr. Baiju Karun, Mr. Rishikesh P.H, Ms. Deepa Prabhu, Dr. Arunkant A. Jose and ably supported by the lab faculties Mr Gincemon George, Ms. Muhsina K. Muhammed, Ms. Lissy K.O and Mr Nixon Joy. The course was coordinated by Mr. Baiju Karun, Asso. Professor.

## INTRODUCTION TO RF AND 5G COMMUNICATION



A three-day training program titled “Introduction to RF & 5G communication using Keysight tools” was offered to the 7th semester students from 18th to 20th July 2018. The course was handled by the faculty members of the department, Dr. Arun Joy, Mr. T. Nithin, Mr. Ameenudeen P.E , Ms. Namitha A.S and ably supported by lab faculty Ms. Muhsina K. Muhammed. The course introduced students to basics of electromagnetic theory, antenna design using ADS, RF parameter measurement using network analyzer and 5G-system design using systemVue software. The course was coordinated by Dr. Arun Joy, Asso. Professor.

## STUDENT ACHIEVEMENTS



Yuva Mastermind Season 9 -Two projects from the ECE Dept were shortlisted in College category and there was a meeting scheduled with the selected teams at manorama office kottayam on 28th September 2018. The first project titled " Testing Glucose in blood with sensor without taking blood" is done by the S3-ECE students Ms.Vaishnavi G Rao, Mr.Joseph D Kalapurackal, Ms. Anjana P, Albin Kuriakose and mentored by Mr. Baiju Karun, Asso. Professor and Dr. Arunkant A. Jose, Asst. Professor. The second project titled " Find your way" is being done by Mr.Vishnudev S, Mr.Ashik Polly, Ms. Annsana Baby and Mr.Jefin Paul and mentored by Mr.Rishikesh PH, Asst. Professor and Ms. Deepa Prabhu, Asst. Professor.



## FACULTY ACHIEVEMENTS

- Dr. Abhilash Antony, HOD ECE received the top reviewer award in Publons' global Peer Review Awards 2018
- Dr. Namitha A.S, Asst. Professor received her PhD from NIT Calicut in the field of wireless communication on 29th September 2018.

## INDUSTRIAL INTERACTIONS

- As part of IEEE young professionals, Mr. Anas. MM visited SFO technologies, Kakkanad on 7th July 2018.
- As part of the MS course on Automotive Embedded Systems to be offered by MITS in partnership with ESIGELEC, France , Mr. Baiju Karun, Asso. Professor visited Manipal Institute of Technology, Manipal on 11th July 2018.
- Mr Anas MM, Asst. Professor, attended IEEE Nanotechnology Summer School 2018 held at IISc Bangalore from 16th to 20th July 2018.

## FACULTY DEVELOPMENT PROGRAMS

- Ms. Dhanya S, Asso. Professor and Mr. Ameenudeen P.E, Asst. Professor attended a two-day symposium on Cyber Physical Systems (CPS) held at Robert Bosch Centre for CPS, IISc Bangalore on 11th & 12th July 2018.
- Dr. Arunkant A. Jose & Mr. Rishikesh PH attended a talk on "Enabling the Millennials with Market Relevant Skills" held at World Trade Centre, Kochi on 24th July 2018.

## PUBLICATIONS

[1] Nidhin Shaji, Nikhil Biju, Elsa Mariya George, Dhanya S, Anjali SV, "Analysis of VOC using Sensor Array for Early Detection of Breast Cancer", ICETIER'18, Kerala, 2018.

## PLACEMENTS



**MEERA VINAYAN**  
(ANALYTICS QUOTIENT)

**NUMBER OF OFFERS(TILL SEPTEMBER 2018) = 1**

**NUMBER OF STUDENTS PLACED = 1**

## WIRELESS POWER TRANSMISSION



**ANDRIYA MARIYAM BOBAN  
(S7 ECE)**

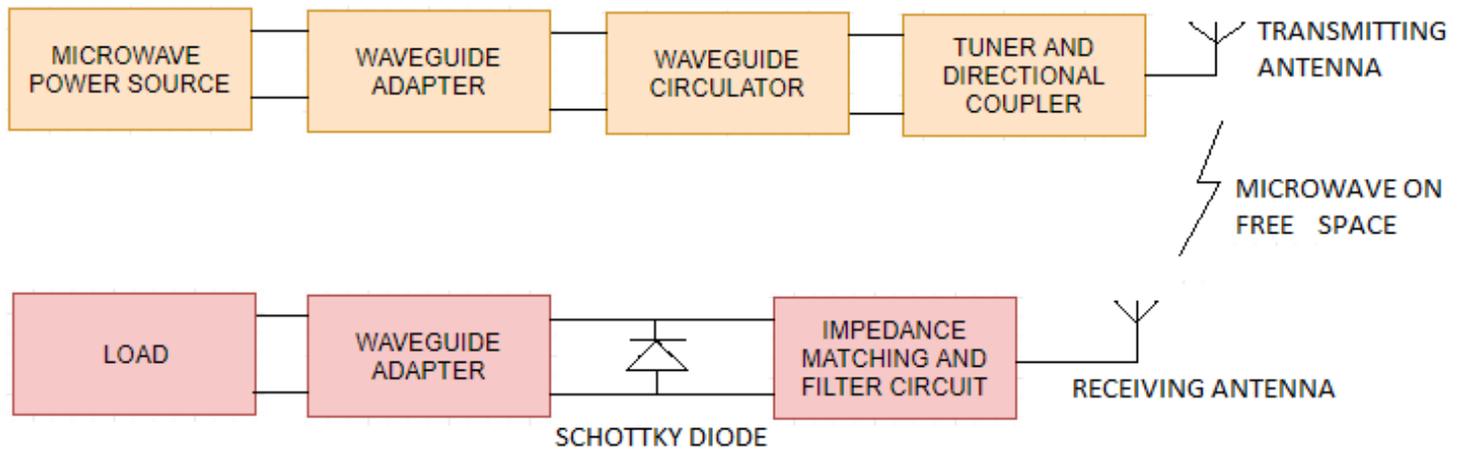
WPT was introduced by the American physicist Nikola Tesla as early as 1889 to answer basic energy demand. His concept was to use electromagnetic waves to supply power anywhere in the world. However, he was unsuccessful in implementing WPT systems since the idea to transmit power without wires was far ahead of the technology. Later with the progress in the areas of electronics, the idea was picked up and researches are oriented back to the WPT systems for transmitting energy from one point to another without wires or any other conductive material. Once this energy is captured, it is converted to direct current (DC). This allows avoiding the restraints of load, to improve the self-sufficiency of the portable electronic systems, to power remotely unreachable electronic systems. RF sources are numerous and centred on various technologies. For power less than 10KW, semiconductor transmitters are frequently used, but they are limited in power for high frequency. For greater powers, microwave vacuum tube is more used.

With the use of WPT technology we can transport power to locations which are otherwise impractical to reach. There are two techniques of WPT systems:

- Near field technique uses inductive coupling. This technique is limited in distance of transmission.
- Far field technique uses microwave power. This technique achieves longer ranges.

WPT system consists of two parts which are distinct and distant in space:

- Transmitting part includes a microwave source, supplied with DC power, a waveguide adaptor, a waveguide circulator, a tuner, a directional coupler and a transmitting antenna. Microwave power is generated which is controlled by electronic control circuits. The waveguide adaptor connects the waveguide circulator with the power source. The waveguide ferrite circulator avoids the source from reflected power. Impedance matching is done by tuner between the microwave source and transmitting antenna. The directional coupler present between circulator and antenna separates the signals based on signal propagation direction. The power is then radiated by the antenna through free space.
- Receiving part includes a waveguide adaptor, a Schottky barrier diode, a receiving antenna, impedance matching and filter circuit. The rectenna receives the transmitted power and converts it into DC power. With the use of impedance matching and filter, the output impedance of the signal source is set equal to the rectifying circuit. This DC power is fed to the resistive load.



**WPT will reduce the cost of transmission and distribution. This system expands the outreach of power and energy to the unserved rural areas with improved efficiency. WPT will eliminate power theft and also diminish the power failure that results from faulty cables in the current infrastructure.**

**WPT has disadvantages such as there have been much concern on microwave radiation effect on human life. Microwave transmits at 2.45GHz and 5.8GHz which happens to be the assigned band for ITU-R Radio Regulations to radio services and it also falls within the bands allotted for ISM. Therefore there is a need to consider interferences between the communication systems and WPT. Microwave have a minor effect on atmosphere seeing the absorption and scatter effect of air and rain as well as the inconsistent ratio of air refraction.**

## NEWSLETTER TEAM

- **Dr.Arun Joy**  
(ECE, Faculty Co-ordinator)
- **Sai Vaishnavi**  
(S6, Chief Editor)
- **Nikhil Biju**  
(S4, Editing and Designing)
- **Nidhin Shaji**  
(S4, Editing and Designing)
- **Ashly Abraham**  
(S4, Student Co-ordinator)
- **Anjali k Saji**  
(S2, student co-ordinator)