# AJ INSTITUTE OF ENGINEERING & TECHNOLOGY

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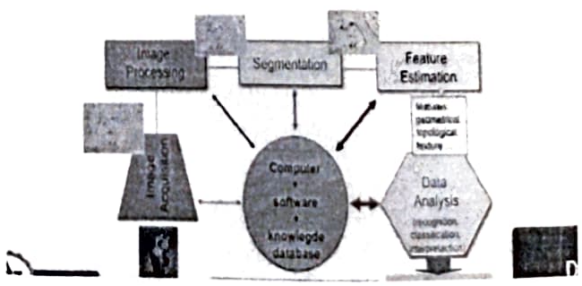
| **NAME OF THE EVENT** | 5 days FDP on "Recent Trends in Medical Imaging & Communications" |
| **ORGANISED BY** | Department of Electronics and Communication Engineering in association with Department of ISE & CSE |
| **CONVENER NAME** | Dr. Gnane Swarnadh Satapathi |
| **DATES** | 24-06- 2021 to 29-06-2021 |
| **TIMINGS** | 9:50AM -12:00PM & 2:00PM-4:00PM |
| **TOTAL NUMBER OF PARTICIAPANTS** | 236 |

## Consolidated Report

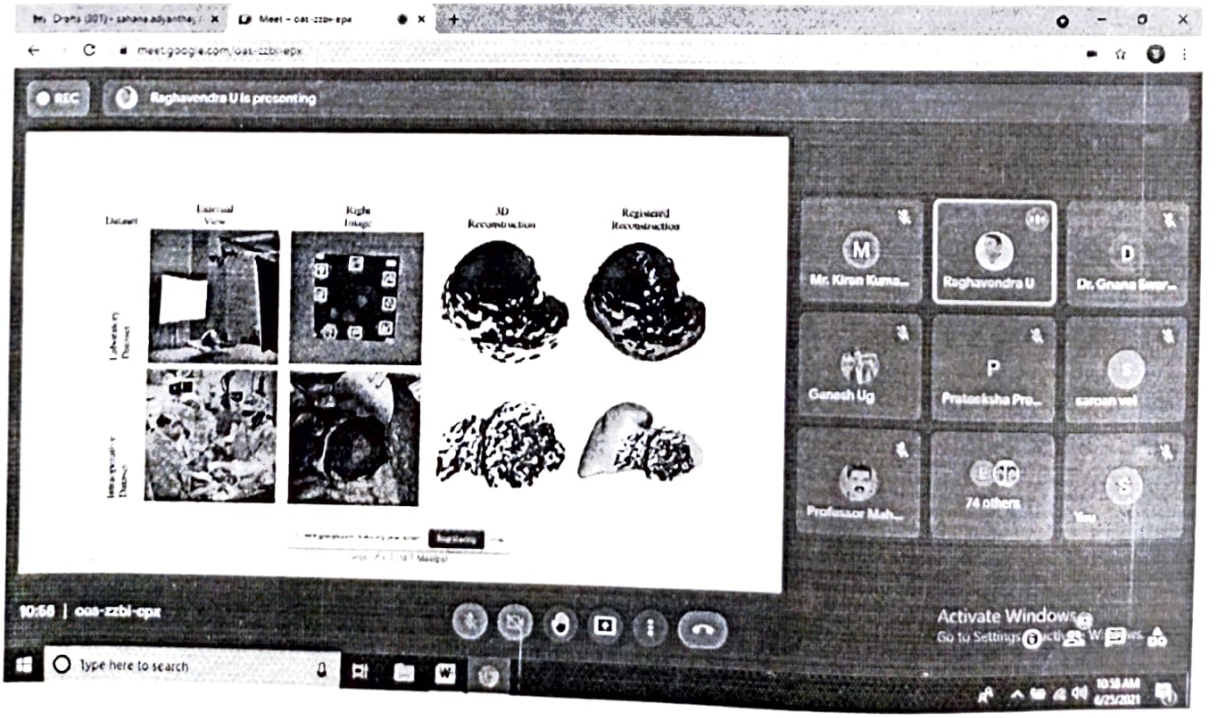
The main aim of Five days FDP is to understand Medical Imaging Processing, Extension from 2D to 3D for Visual understanding, Overview on Power Management Integrated Circuit, Machine Learning for Wireless Communication and Energy Conservation in Wireless Network.

On day 1 the Resource Person, Dr.Harikrishna Rai started the session with fundamental of image processing concepts. He later covered the applications of image processing like picture storage and transmission, enhancement and restoration of images and extracting information from images. He also explained about the typical medical imaging system with block diagram which have sensor for image acquisition, image processing, segmentation, feature estimation and data analysis which is fully controlled by software in computer. A brief explanation was given on Medical imaging design focus, top trends in medical imaging like making scanners smarter, faster and with higher IQ. Portable devices, wearable devices, teleradiology, using technologies like Artificial Intelligence and Machine learning in medical imaging were also explained. In the afternoon session, Octave programming for basics of image processing was demonstrated.

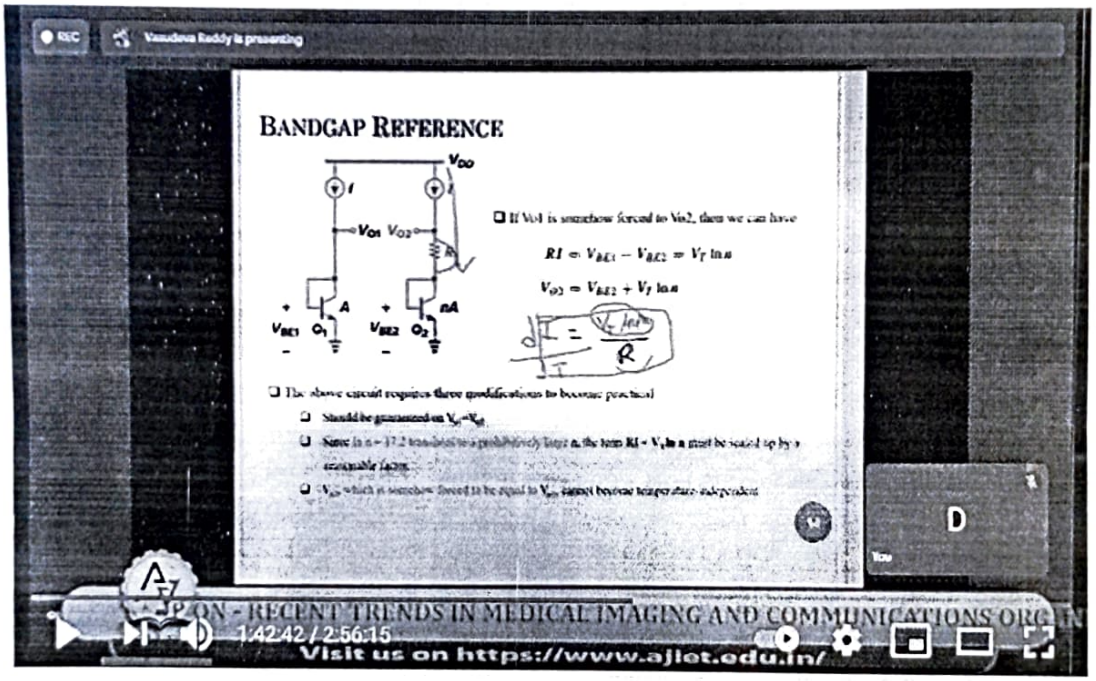
A typical medical imaging system



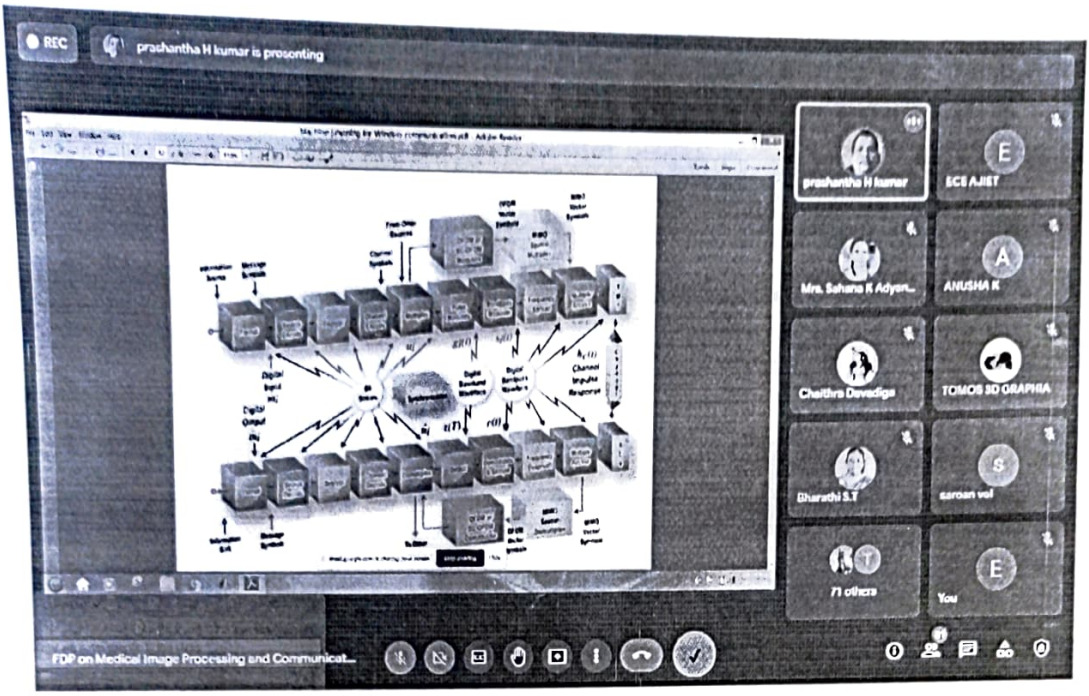

On day-2, Dr. Raghavendra U began with the brief introduction about the significance and the need for the development of computer- aided design tool for better decision making in medical field. The tool should assist the clinical assistants and the doctors in early detection of life- threatening diseases as well as to reduce the mortalities due to abnormalities which are hard to identify in the early stages. The resource person briefed about the projects that he and his team have carried out and are currently working on. He also emphasized on using machine learning and deep learning algorithms for the mentioned applications. In the afternoon session "Octave Programming on Image Restoration and Wavelets" conducted by Dr. Harikrishna Rai.



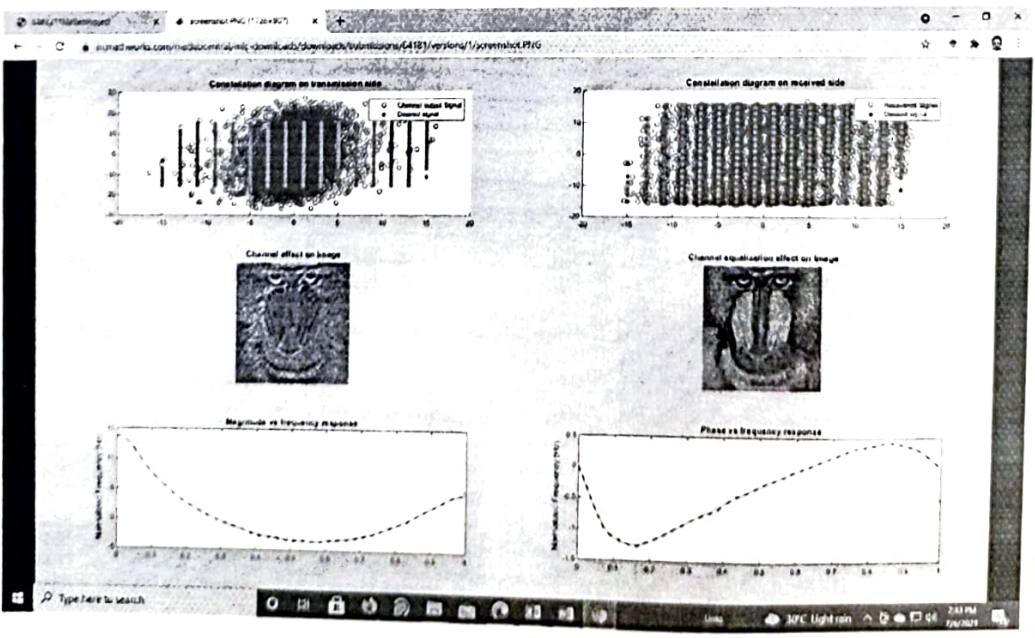
Day-3 session by Dr. Vasudeva Reddy began with brief introduction about the importance of PMIC (power management Integrated circuit). With the block diagram of wireless sensor for motion capture which consists of communication module and sensor module, the role and importance of PMIC was explained to generate the required voltages to these two modules by using single battery. He later covered the blocks of PMIC which has Band gap reference circuit (BGR) which generates PVT independent intermediate voltages and currents required for sub blocks, low drop –out regulators which generates stable supply voltage for lower loads, DC to DC converters generates stable supply voltages for higher loads. Apart from these 3 blocks additional blocks of PMIC was also covered. Additional blocks of PMIC are current mirrors and golden reference current generator. In the afternoon session there was a demonstration of image segmentation and representation in octave.




Day-4 session by Dr. Prashantha Kumar began with brief introduction about communication and its evolution. Detailed discussion on features of 4G and 5G communication. Discussed the importance of different types of receivers: super hetero dyne receiver, direct conversion receiver and Low IF receivers with the block diagram. The importance of filters, amplifiers and mixers in different types of receivers was explained thoroughly. In the afternoon session there was a demonstration on analog and digital modulation techniques in octave.




The day 5 Session by Dr. A Rajesh introduced about the need Energy Conservation in the wireless networks especially in this era where all the devices are connected today via the internet. In the age of Internet of things where billions of devices are connected through internet the need for energy conservation plays a major role. The need for energy efficiency and green network was discussed. Power management and comparison of 3G with LTE and others. Various 5G models were introduced. Energy saving in the various network etc. Different techniques for energy conserving was discussed. In the afternoon session there was a demonstration Octave Programming on Channel equalization using LMS algorithm in octave.



The Valedictory of the 5-day workshop was also conducted after the talk. Mrs Pratheeksha Rai was the master of ceremony for the Valedictory. Dr. Gnane Swarnadh Satapathi, Head of Department, ECE, delivered the concluding remarks of the 5-day program. Few of the participants gave their valuable feedback about the workshop. Also, the feedback about the sessions were collected from all the participants to improve the sessions that will be conducted in the mere future.

**Mode of Conduction:** Google Meet : https://meet.google.com/oas-zzbi-epx

**You Tube Links:**

| Sl No | Schedule | YouTube |
|---|---|---|
| 1 | Day 1 | https://www.youtube.com/watch?v=y7ZtbW67PR8 |
| 2 | Day2 | https://www.youtube.com/watch?v=xNeT5Td99-w |
| 3 | Day3 | https://youtu.be/WE2hXwpZ9aQ |
| 4 | Day4 | https://www.youtube.com/watch?v=GjD9PiYZS60 |
| 5 | Day5 | https://www.youtube.com/watch?v=rIABBIFeiDk |

8/7/21

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