REPORT ON

ONE WEEK ONLINE FDP ON RF TECHNOLOGY FOR ENERGY HARVESTING, MEDICAL, AND COMMERCIAL APPLICATIONS
(14th to 18th December 2020)

One week online FDP on RFTEMC2020 proposed, and initiated by the Dept. of ECE, and immediately got approved from the Principal, and the Management of Sreyas Institute of Engineering and Technology. 208 participants have registered for the FDP. We are happy to inform you that maximum participants are from all the parts of India, and we received two international participants from Russia and Dubai.

The following topics have focused in the FDP:

- Microwave Communication
- Design and Implementation of Antennas for Industrial Applications
- RF technology for concealed target detection using radio tomography
- Computational electromagnetic for medical applications
- EMI/EMC
- Liquid Antennas for advanced communication systems.
- Fractal array antennas and applications.
- Microwave Imaging.

The detailed day wise report as follows,

DAY.1

First day of the program have started by the inaugural address by the Principal Dr. S. Sai Satyanarayana Reddy, Chief guest Prof. P. V. Y. Jayasree, Convener Prof. B. Sreenivasu, and the coordinator, Dr. V. A. Sankar Ponnapalli. Chief guest emphasized on the importance of high frequency electronics for various applications.

Resource person of the Session.1 of the first day, Prof. P. V. Y. Jayasree from GITAM discussed about the EMI/EMC issues, various sources for emi sources observed in day-to-day life, and how
to avoid interference issues. Resource person explained few case studies on EM interference issues.

Resource person of the Session.2 of the first day, Dr. D. Rama Krishna from Osmania University delivered his lecture on reconfigurable antennas for advanced wireless applications. He showcased various RECONFIGURABLE antennas for 5G and other advanced applications, developed by the centre of excellence microwave lab of ECE Department, OU.

**DAY.2**

Session.1 of the Day.2 started with the resource lecture by Prof. S. Raghavan from Department of ECE, NIT Tirchy. Prof. Raghavan shared his vast experience in microwave engineering, and basically concentrated on the transmission lines for planar antennas.

Session.2 of the Day.1 stared with the resource lecture by Dr. Swtha amit from M.S. Ramaiah Institute of Technology, and she concentrated on the advanced antenna model, (i.e.) liquid antennas. She is also shared their research work on liquid antennas, and suggested research ideas on these antennas.

**DAY.3**

Session.1. of the Day.3 carried out by the Dr. M. Nanda Kumar from Dept. of ECE, Sreenidhi Institute of Science and Technology Hyderabad. He is concentrated on the one of the trending topic in antenna design (i.e.) wearable antennas, and suggested few research ideas for young researchers.

Session.2 of the Day.3, Dr. Amit R Azad from BITS Pilani Hyderabad given a resource lecture on Microwave filters, and substrate integrated waveguides (SIW’s).

**DAY.4**

Session.1 of the Day.4, Started with the presentation of Dr. E. Mallikarjun from Dept. of ECE, NIT Goa, and He concentrated on the Microwave Imaging and application in medical, military, and commercial applications.

Session.2 of the Day.4 taken by the both Dr. Nanda Kumar from SNIST, and Dr. V. A. Sankar Ponnapalli from Dept. of ECE, Sreyas IET. Dr. Nanda Kumar concentrated on the SIW antennas and recent applications. Dr. V. A. Sankar Ponnapalli focused on fractal array antennas and applications, and also discussed about the research ideas on fractal arrays.
Day 5

Session 1 of the Day 5, Dr. Shivraj M Rathod from Defence R&D unit of Bharat Forge Limited, Pune. Dr. Shivraj concentrated on the RF technology for concealed target detection using Radio Tomography, and Microwave imaging concepts. He also explained about the internship and training programs in RF & Microwave Engineering provided by Bharat Forge unit. Session 2 of the Day 5, taken by the Dr. T. Shanmuganatham from Pondicherry Central University, Pondicherry on one of the trending topic (i.e.) fractal metamaterial antennas, and he explained about the various design aspects of fractal based metamaterial antennas.

Resource Persons

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation &amp; Affiliation</th>
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<tbody>
<tr>
<td>Dr. S. Raghavan</td>
<td>Dept. of ECE</td>
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<tr>
<td></td>
<td>Professor (Retd.), NIT Trichy</td>
</tr>
<tr>
<td>Dr. T. Shanmuganatham</td>
<td>Associate Professor</td>
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<tr>
<td></td>
<td>Dept. of Electronics Engineering, School of Engineering and Technology, Pondicherry Central University, Pondicherry.</td>
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<tr>
<td>Dr. P. V. Y. Jayasree</td>
<td>Professor</td>
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<td></td>
<td>Dept. of Electronics and Communication Engineering</td>
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<tr>
<td></td>
<td>GITAM (Deemed to be University),</td>
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<td>Visakhapatnam</td>
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<tr>
<td>Dr. D. Rama Krishna</td>
<td>Associate Professor</td>
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<td></td>
<td>Dept. of Electronics and Communication Engineering</td>
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<td></td>
<td>Osmania University, Hyderabad</td>
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<tr>
<td>Dr. E. Mallikarjun</td>
<td>Assistant Professor</td>
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<td>Dept. of Electronics and Communication Engineering</td>
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<td>NIT Goa</td>
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<td>Dr. Nanda Kumar</td>
<td>Assistant Professor</td>
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<td>Dept. of Electronics and Communication Engineering</td>
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<td></td>
<td>SNIST Hyderabad</td>
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<tr>
<td>Dr. Shiva Raj Rathod</td>
<td>Assistant Manager (Defense R&amp;D)</td>
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<td>Bharat Forge, Pune</td>
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<td>Dr. Amit Ranjan Azad</td>
<td>Assistant Professor</td>
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<td>Department of Electrical and Electronics Engineering</td>
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<td>Birla Institute of Technology and Science, Pilani</td>
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<td>Hyderabad Campus</td>
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<tr>
<td>Dr. Swetha Amit</td>
<td>Assistant Professor</td>
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<td></td>
<td>Department of Electrical and Electronics Engineering</td>
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<td>M S Ramaiah Institute of Technology</td>
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<td>Bangalore</td>
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<td>Sreyas IET Hyderabad</td>
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SESSION WISE SCREENSHOTS

DAY.1. SESSION-1

Typical Open-Area Test Sites (OATS)

DAY.1. SESSION-2

DISCUSSION ON MEASURED RESULTS

- There is a shift in frequency due to effect of limiting (strict), assembly and fabrication error. This can be avoided by a better matching circuit and isolated power supply for the PFA devices.

- In the actual tests measurement, the variation in the received power in donor class. (MB) which indicates that the antenna is linearly polarized.

- The variation in the received power is less than 4dB that indicates that the antenna is circularly polarized.

The Team thanks:
DAY.2. SESSION.1

Microsoft Teams

People

DAY.2.SESSION.2

Existing Naval Antenna Systems suffer from two major problems: lack of reconfigurability and large radar cross section

SOLUTION ???

Reconfigurable antenna system with minimal radar cross section using liquids as a conducting material
DAY.3. SESSION.1

Microsoft Teams

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Table: The Wearable devices and their applications

<table>
<thead>
<tr>
<th>Field</th>
<th>Applications</th>
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<tbody>
<tr>
<td>Health</td>
<td>Glucose monitoring / Endoscopy / Oximetry / GPS</td>
</tr>
<tr>
<td>Entertainment</td>
<td>Smart watches / Music jackets / LED dress / Intelligent</td>
</tr>
<tr>
<td>Rescue and Security</td>
<td>Helmet / Tractors / Fitness bands</td>
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DAY.3. SESSION.2

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SIW Inline Filters

Dr. Anil Bagyan (Guest)
DAY.4. SESSION.1

DAY.4.SESSION.2 (a)
DAY.4.SESSION.2(b)

Why Fractal Antenna?

- Multi-Band Frequency; Reconfigurable Multi-beams etc...

Fractal antenna structure
DAY.5.SESSION.1

One week on-line Faculty Development Program On
"RF Technology for Energy Harvesting, Medical and Commercial Applications"
18th to 18th Dec 2020
Organized by SIT-Hyderabad

RF Technology for Concealed Target Detection using Radio Tomography
Dr. Shrivas Rathod
Assistant Manager
Defence R & C
Bharat Forge Limited

DAY.5.SESSION.2

Fractal Antennas For Multiband Applications

Dr. T. SHANMUGANANTHAM
Associate Professor
Dept. of Electronics Engineering
Pondicherry Central University
Pondicherry-605 014
INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Approved by AICTE, New Delhi | Affiliated to JNTUH, Hyderabad | Accredited by NAAC & NBA)
Hyderabad | PIN: 500068

BROCHURE

Programme Organization

Chief Patron
Sri. Ananthakrishna Reddy, Chairman, Sreyas Patrons

Patrons
Sri. Chandrashekar Reddy, Secretary
Sr. Madhavi Reddy Reddy, CGM & Treasurer
Sri. Annadurai Reddy Reddy, Vice-Chairman

Convener
Dr. B. Sasidharanarayana Reddy, Pro-Vice-Chancellor

Resource Persons
Dr. S. Rekha,
Professor (Head), ECE Department

Dr. T. Srinivasan,
Professor, ECE Department, University of Hyderabad

Dr. P. V. V. Jagannath,
Professor, IIT, Chennai

Dr. R. N. Krishna,
Assistant Professor, University of Hyderabad

Dr. S. G. Ravi Reddy,
Assistant Professor, IIIT, Hyderabad

Dr. V. S. Ramakrishnan,
Professor, JNTUH

Department: Electronics and Communication Engineering

Registration Link
https://sreyas.in/apply

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SREYAS INSTITUTE OF ENGINEERING & TECHNOLOGY
(Approved by AICTE, New Delhi | Affiliated to JNTUH, Hyderabad | Accredited by NAAC & NBA)
Hyderabad | PIN: 500068

Sreyas Institute of Engineering and Technology (SIET), affiliated with Sreyas Educational Institutions was established in the year 2011. The state of Telangana by eminent entrepreneurs and social workers, this institution's vision is to impart quality education through value-based education and socio-economic development. The institute offers undergraduate programs with innovative curriculum, advanced research in cutting-edge technologies, and societal engagement through outreach activities. The integration of practical learning and theoretical knowledge is emphasized to produce technically proficient graduates.

SIET is one of the premier engineering colleges in Telangana. The institute currently offers six undergraduate programs: B.Tech – Computer Science and Engineering, CSE Data Science, CSE Artificial Intelligence and Machine Learning, Electronics and Communication Engineering, Mechanical Engineering, and Civil Engineering. The institute is accredited by NAAC and is approved by the National Board of Accreditation (NBA).

About the Department
The Department of Electronics and Communication Engineering has been established in the year 2011 with an intake of 120 students. The department has a strong focus on research and has received funding from various national and international organizations. The department has received funding from prestigious organizations such as the Department of Science and Technology (DST), Council of Scientific and Industrial Research (CSIR), and the UGC. The department has also received funding from the All India Council for Technical Education (AICTE) and the University Grants Commission (UGC).

The department is equipped with state-of-the-art laboratories and has well-qualified faculty members. The department has a strong industry tie-up and has established collaborations with leading industries such as Reliance Jio, Infosys, and Wipro. The department has also established a vibrant student association, the Electronics and Communication Engineering Society (ECES), which organizes various events and workshops.

Some of the highlights of the department include:
- Total number of publications in last 5 years is around 115
- We have strong group of well experienced faculties who guide GATE aspirants to the students within the college hours
- There are 4 Ph.D. holders and most of the faculties are pursuing Ph.D.

Admission
This M.Tech program is open for students with a Bachelor’s degree in Electrical Engineering. The admission process is based on a combination of academic performance in the last 10 years and an entrance examination. The entrance examination is conducted by the institute and is followed by a personal interview.

Eligibility
- Applicants must have completed their Bachelor’s degree in Electrical Engineering with a minimum of 60% aggregate marks.

For more information on the admission process, please contact the institute directly.
Memorable Event Photos from FDP

[Image of event photos from a webinar or online event]