

REGISTRATION FORM

Two Day Workshop on
On
“Advances in 5G Antenna Technologies”
3rd -4th May 2021

Name: _____

Designation: _____

Institution/Organization: _____

Address: _____

Contact Number: _____

Email: _____

Qualifications: _____

Experience in years:

Teaching: Research: Industry:

**Signature of the
Participant**

**Signature of the
Head of the Institution**

Last date for Registration: 30th April 2021

**Address for Communication:
Mr.Ch. Raghavendra**

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Mobile. No: 9640952001

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Siddhartha Academy of General & Technical Education
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Professor & Head of ECE

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Mrs.B.Alekya, Assistant Professor
Mr.K.Premchand, Assistant Professor
Mrs M. Bhagya Lakshmi, Assistant Professor
Mrs K. Sneha, Assistant Professor

Eligibility

The workshop is open to faculty members of AICTE approved Institutions, Research scholars and persons from industry and R&D organizations from all over country.

Registration Fee: *NIL*****

Registration link:

<https://forms.gle/Hmh5qjCTK4NxfdK6>

AICTE Sponsored



Two Day Workshop
On
“Advances in 5G Antenna Technologies”
3rd -4th May 2021

under

AICTE MARGADARSHAN SCHEME

Co-ordinators

Mr. Ch. Raghavendra, Asst. Prof. of ECE

Mrs. V. Saritha Asst. Prof. of ECE

Organized by



**Department of
Electronics & Communication Engineering
Velagapudi Ramakrishna
Siddhartha Engineering College**

(Autonomous)

(Sponsored by Siddhartha Academy of General &
Technical Education)

Kanuru, Vijayawada-520007

Andhra Pradesh

www.vrsiddhartha.ac.in

☎: 0866-2582333, 2584930

About the College:

Velagapudi Ramakrishna Siddhartha Engineering College (VRSEC) was established in the year 1977 as the first Self-financing Engineering College in the state of A.P. It is located in a vast expanse of 24.05 acres of land on the outskirts of Vijayawada city at a distance of about 6Kms from the city centre. The college is offering 7 UG (B.Tech) Courses with intake of 1140, 9 PG- M.Tech with 180, MBA with 60 and MCA with 60. The college has been accredited four times by National Board of Accreditation (NBA) of All India Council for Technical Education (AICTE), New Delhi in respect of all Engineering disciplines and also certified for ISO 9001:2008. It is affiliated to Jawaharlal Nehru Technological University, Kakinada, AP. Autonomous status was conferred by UGC in the year 2006 and extended for 10 years upto 2027-28 without visit to the college, first in AP. It is one among the top 16 Engineering Colleges selected with Rs 6 crores funding under World Bank aid for R&D and PG enhancement programme called TEQIP –II (S.C.1.2) by MHRD, Govt. of India. The institute secured AAA ranking and all India 7th position for the participation by students and faculty in NPTEL/SWAYM. The College received Platinum Award in years 2017, 2018 & 2019 as a Best Industry Linked Technical Institute by AICTE-CII Survey. It is also recognized as “Scientific & Industrial Research Organization (SIRO)” by DSIR. MST, Govt. of India since August 2017.

About ECE Department:

Established in the year 1977, the department of ECE offers B.Tech Programme in Electronics & Communication Engineering with an intake of 240 and two M.Tech Programmes in Communication Engineering & Signal Processing and VLSI Design & Embedded Systems with an intake of 18 each. The department has been accredited by NBA of AICTE four times. More than 40% faculties are

with Ph.D. qualification. Led by a team of highly qualified experienced faculty with specializations such as RF & Microwave, Antennae, Digital Signal Processing, Wireless Communications, Digital Image Processing, VLSI and Embedded systems etc, the department provides excellent academic and research environment to the UG, PG and research students. A centre of Excellence (TIFAC CORE- DST) in Telematics was established in the year 2009 with the state of the art facilities. Having successfully completed many research projects funded by UGC, AICTE, NRSC-ISRO DLRL & ANURAG-DRDO etc., it is also recognized by JNTUK as "**Research Center.**" Faculty members extend guidance to research scholars, produce Ph.D.'s and publish their findings in peer reviewed national and international journals and conferences.

About workshop:

The proposed Workshop is devoted to the fundamental theory, recent developments and research outcomes addressing the related theoretical and practical aspects in the usage of advanced tools and techniques for the 5G Antenna Design. Workshop provides an exposure to new areas of research and development being carried out in universities abroad and rest of the world. Workshop not only enhances the research competence of faculty in the areas of 5G antennas by providing exposure to practical problems and solutions, through case studies and live projects

Objectives of Workshop:

The program focuses on Antenna design aspects and simulation for 5G Communication with a synthesis approach and progressively builds up the background through an illustrative design and characterization set of learning activities of some of the basic concepts of spectrum access techniques

Course Contents:

- Overview of Antennas and its parameters
- HF, VHF, Wideband and Multiband Antennas Design
- Overview of Basic 5G Standard
- Advances in 5G Antenna Technologies.
- Design Modeling and Simulation of Antennas using HFSS.

Resource Persons:

- **Sri. D. Sri Ram Kumar**
Professor Department of ECE
NIT Tiruchirappalli
- **Dr. Y. Raja Rao**
Professor Department of ECE
VRSEC
- **Er. P. Mahalakshmi**, Sr. Researchist
- Wilma Communications Group
- **Er. M.Vinoth**, Co-Founder & Head.
Wilma Communications Groups

***Note:** E- Certificates will be provided to those participants who attend all the sessions of the program and also appear for the online test as per the norms of AICTE.

Online meeting link will be provided through **WhatsApp.**

The number of Participants will be limited to 100.

Schedule:

10.00AM to 12PM & 2.30pm to 4.30pm on 3rd and 4th May 2021



Two Day Workshop
On
“Advances in 5G Antenna Technologies”



on
3rd -4th May 2021

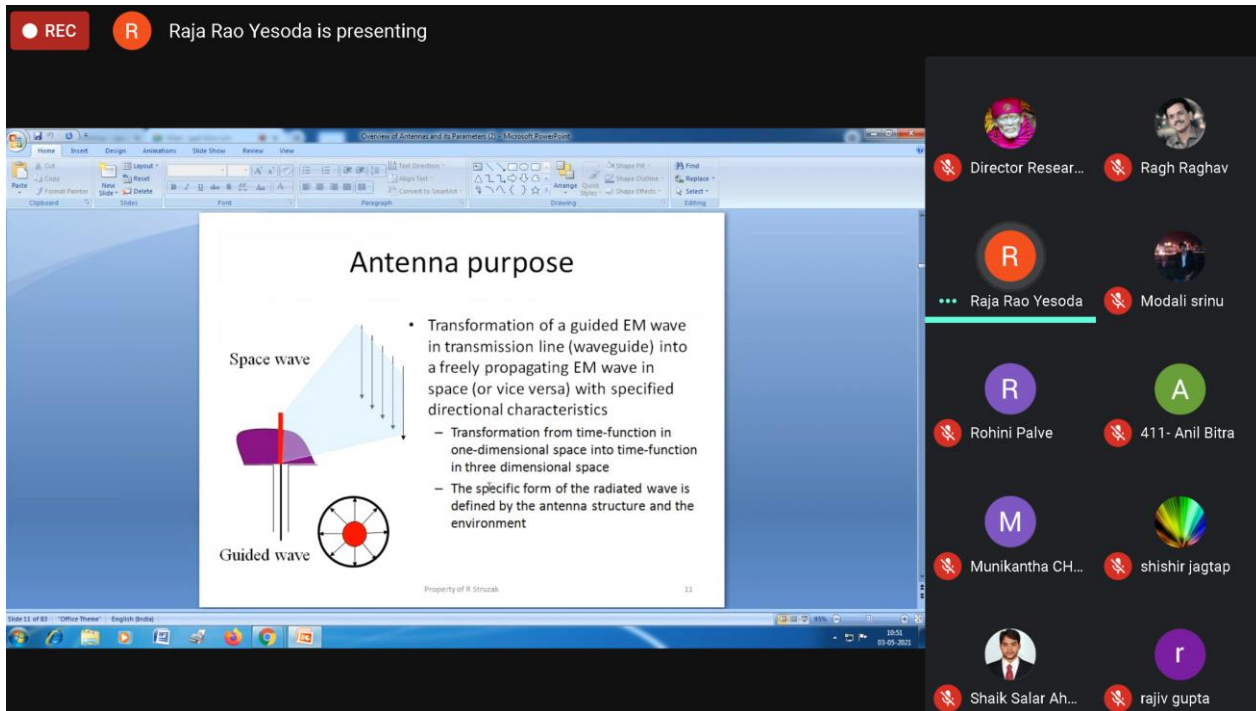
Schedule
Online Platform : Google meet

Day-1(Date:03.05.2021)	
9.30-10.00 AM	Inauguration By Co-Ordinators
10.00 to 12:00 PM	Talk by Dr.Y. Rajarao Professor, Dept. of ECE,VRSEC, Vijayawada. “Overview of Antennas and its parameters HF, VHF, Wideband and Multiband Antennas Design”
12:00 to 2:00 PM	Lunch Break
2:00 to 4:00 PM	Er. M.Vinoth Manoharan, Co-Founder & Head. Wilma Communications Groups “Basic of V2X in 5G”
Day-2 (Date:04.05.2021)	
10.00 to 12:00 PM	Invited talk by Sri. D.Sri Ram Kumar Professor Department of ECE NIT Tiruchirappalli “Overview of Basic 5G Standard Advances in 5G Antenna Technologies”
12:00 to 2:00 PM	Lunch Break
2:00 to 4:00 PM	Er. M.Vinoth Manoharan,, Co-Founder & Head. Wilma Communications Groups “Design and Simulation of Antennas using HFSS With various applications”
4:00 to 4:30 PM	Valedictory

Day 1 (03-05-2021): Session 1

1. **Dr. Y. Raja Rao**, Professor Department of ECE , V R Siddhartha Engineering College, Vijayawada. He delivered lecture on “Overview of Antennas and its parameters”.

REC Raja Rao Yesoda is presenting



The screenshot shows a Zoom meeting interface. On the left, a PowerPoint slide titled "Antenna purpose" is displayed. The slide contains a diagram of an antenna and a list of bullet points. On the right, a list of participants is visible, including Raja Rao Yesoda, Rohini Palve, Munikantha CH..., Shaik Salar Ah..., Director Resear..., Ragh Raghav, Modali sru, 411- Anil Bitra, shishir jagtap, and rajiv gupta.

Antenna purpose

- Transformation of a guided EM wave in transmission line (waveguide) into a freely propagating EM wave in space (or vice versa) with specified directional characteristics
 - Transformation from time-function in one-dimensional space into time-function in three dimensional space
 - The specific form of the radiated wave is defined by the antenna structure and the environment

Space wave

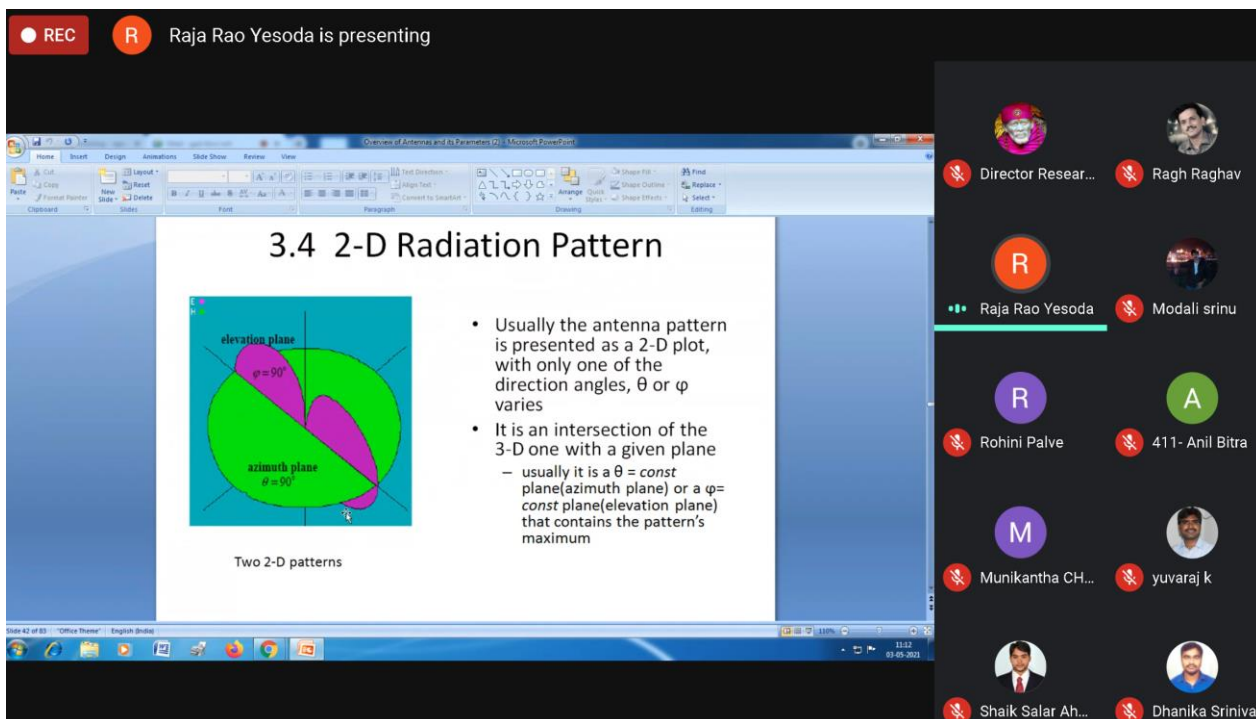
Guided wave

Property of R. Srirajak

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Participants: Director Resear..., Ragh Raghav, Raja Rao Yesoda, Modali sru, Rohini Palve, 411- Anil Bitra, Munikantha CH..., shishir jagtap, Shaik Salar Ah..., rajiv gupta.

REC Raja Rao Yesoda is presenting



The screenshot shows a Zoom meeting interface. On the left, a PowerPoint slide titled "3.4 2-D Radiation Pattern" is displayed. The slide contains a diagram of a 2-D radiation pattern and a list of bullet points. On the right, a list of participants is visible, including Raja Rao Yesoda, Rohini Palve, Munikantha CH..., Shaik Salar Ah..., Director Resear..., Ragh Raghav, Modali sru, 411- Anil Bitra, yuvaraj k, and Dhanika Srinivas.

3.4 2-D Radiation Pattern

- Usually the antenna pattern is presented as a 2-D plot, with only one of the direction angles, θ or ϕ varies
- It is an intersection of the 3-D one with a given plane
 - usually it is a $\theta = \text{const}$ plane (azimuth plane) or a $\phi = \text{const}$ plane (elevation plane) that contains the pattern's maximum

elevation plane $\phi = 90^\circ$

azimuth plane $\theta = 90^\circ$

Two 2-D patterns

Participants: Director Resear..., Ragh Raghav, Raja Rao Yesoda, Modali sru, Rohini Palve, 411- Anil Bitra, Munikantha CH..., yuvaraj k, Shaik Salar Ah..., Dhanika Srinivas.

Day 1 (03-05-2021): Session 2

1. This session was presented by **Er. M.Vinoth**, Co-Founder & Head, Wilma Communications Groups (Asia | US | Europe), Chennai. His talk on **“Basic of V2X in 5G”**

5G in India

In 2017, TRAI (Telecom Regulatory Authority of India), announced that they are planning to auction the 3300-3400 MHz and 3400-3600 MHz bands to enable telecom operators to offer 5G services.

Band	Frequency	Status
n78	3300 - 3400 MHz	Upcoming (Planned)
n78	3425 - 3600 MHz	Upcoming (Planned)
n258	24.25 - 27.5 GHz	Upcoming (Planned)
n257	27.5 - 29.5 GHz	Upcoming
-	29.5 - 31.3 GHz	Upcoming
-	31.8 - 33.4 GHz	Upcoming
n259	40 - 43.5 GHz	Upcoming
n260	37 - 40 GHz	Upcoming

Vinoth M

vignan vits

Ch.Raghavendr...

Dr.A.Jhansi Ra...

Munikantha CH...

anjali rochkari

Sahithi Pamula...

Anusha Taguru

ECA 41

B. Jaya Ram

REC

Vinoth M is presenting

C-V2X

Rel 14/15 C-V2X established basic safety

Rel 16 NR C-V2X saw continued evolution for advanced use cases

V2V
Vehicle-to-vehicle
e.g., collision avoidance safety systems

V2I
Vehicle-to-infrastructure
e.g., roadside traffic signal emergency

V2P
Vehicle-to-pedestrian
e.g., safety alerts to pedestrians, bicyclists

V2N
Vehicle-to-network
e.g., remote troubleshooting, cloud services

Vinoth M

C

M

E

a

B

Day 2 (04-05-2021) Session 3

Dr. D. Sri Ram Kumar Professor Department of ECE, NIT Tiruchirappalli.

.His talk is on **“Overview of Basic 5G Standard Advances in 5G Antenna Technologies”**.

REC S sriram kumar Dhamodharan is presenting


Antennas- An introduction

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Antennas are devices for radiating or receiving radio waves. They are analogous to the speakers and microphones of an audio system.

How do antennas radiate?


- Must support oscillating currents (pulsed or time harmonic currents)
- The simplest and most understood antenna is the dipole




Radio/TV Station Antenna Tower



CMH Airport Scanning Radar



First Antenna named DSS-13



Fighter Nose Radar for Guidance

Participants: Ch.Raghavendr..., vignan vits, sriram kumar D..., Subba Rao C, Sneha K Assist..., Kore Sandhya, Rohini Palve, B. Jaya Ram, Swapna Sindhu, Director Resear...

REC S sriram kumar Dhamodharan is presenting

3D metal antennas

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Advantages

- Using 3D printing, material is joined or solidified under PC control in order to create a 3D object.
- The antenna developed using 3D printing technology is known as 3D printed antenna.
- It helps in rapid prototyping of the design. Moreover it can be used as additive manufacturing method.


Examples:

- Tripole or dual dipole antennas.
- Gallium based 3D antenna array
- 16-element antenna array developed by Optisys (as shown in figure)

- 3D printing produces cheaper antenna.
- 3D printing allows flexibility to manufacture any complex shapes compare to traditional approach.
- They are easy to construct using sophisticated tools.
- They provide high accuracy in manufacturing processes as the design is executed by photo etching.
- The 3D printing produces highly innovative and customizable designs.



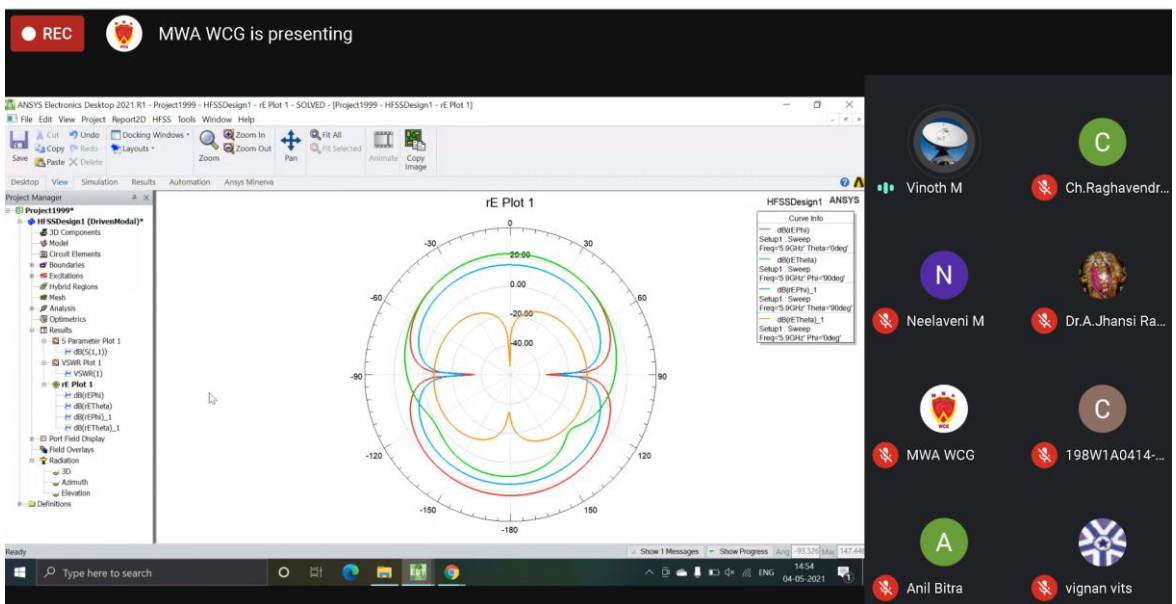
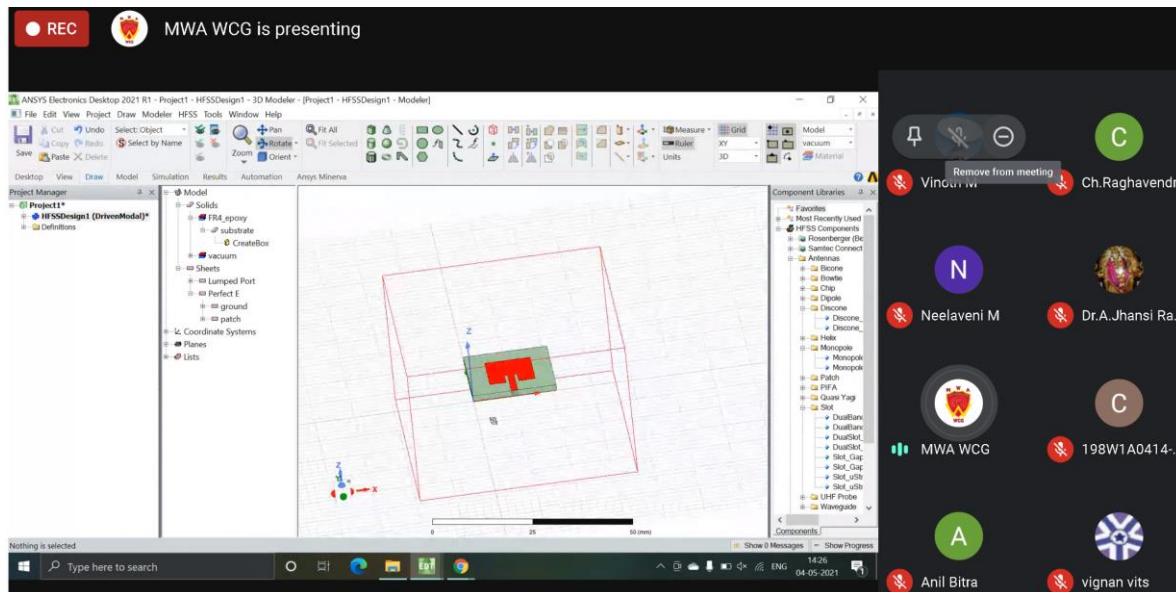
Waveguide arrays



Participants: Ch.Raghavendr..., vignan vits, sriram kumar D..., Subba Rao C, Sneha K Assist..., Kore Sandhya, Rohini Palve, B. Jaya Ram, Munikantha CH..., Director Resear...

Day 2 (04-05-2021) Session 4

1. **Er. M.Vinoth**, Co-Founder & Head, Wilma Communications Groups (Asia | US | Europe), Chennai and **Er. R. Joe** (Application Engineer) Wilma Communications Groups, Chennai. Their talk is on **“Design and Simulation of Antennas using HFSS With various applications”**



At the end **Dr. A. Jhansi Rani**, one of the coordinator of workshop offered a vote of thanks and issued e-certificates to the participants.