

# Advanced Communication Lab

Advanced Communication System Laboratory covers design and verification of the concepts of modern communication systems that operates in MHz-THz range. The main focus of this Laboratory is to design next-generation wireless technologies and mobile computing systems. In particular the research in the broad areas of wireless communications and RF Antenna Design will be conducted.



PHOTO 1

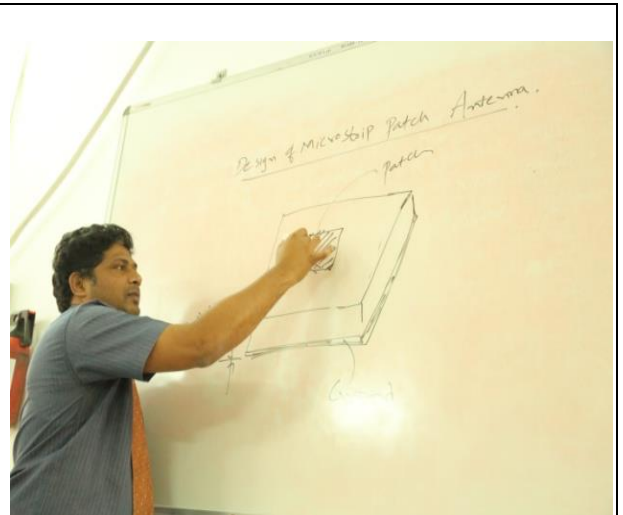


PHOTO 2



PHOTO 3



PHOTO 4

Experiments/Research Work: Research Work on Antennas can be conducted

## Major Equipment:

S. No	Name of The Equipment	Qty.	Cost in Rs.
<b>Hardware</b>			
1.	Lenovo(Intel Core I5 ,10 <sup>th</sup> Generation ,8GB Ram ,128 SSD ,1TB External Hard disk)	36	20,39,400
2.	Computer chairs	36	79,200
3.	Blue star A/C's	02	1,12,500
<b>Software's</b>			
4.	ANSYS ELECTROMAGNETICS SUITE 18.0	100	7,20,000.00
	i)ANSYS Electronics Desktop 2017.0		
	ii)ANSYS EMIT 2017.0		
	iii) ANSYS PEmag 2017.0		
	iv)ANSYS PExprt 2017.0		
	v)ANSYS Savant 2017.0		
	vi)ANSYS Simplorer 2017.0		
	vii)ANSYS Slwave 2017.0		
5.	Research Licence	10	
<b>Total</b>			<b>29,51,100</b>

## Research Activities:

### Event Organized under Advanced communication lab

1. Organized a 5 day workshop for technical supporting staff on "Electronic Design Automation tools, 04th-08th May2020.
2. Organized a 3 day workshop for technical supporting staff on "Electronic Design Automation tools" 21th-23th November 2019
3. Organized 6-Day Faculty Development Programme on "Design and analysis of RF Antennas using HFSS" 13th -18th November 2017.
4. Organized a 5-Day Student Certification Programme on "Design and analysis of Antennas using HFSS" 17th to 22nd August 2017
5. Organized a 3-Day Faculty Development Programme on design and analysis of RF Antennas using HFSS. 28th-30th November 2016.

### Research Publications under Advanced communication lab

#### Details of Faculty Utilizations @ Advanced Communication Lab

S.NO	Category	Academic Year	Quantity
1.	Paper Publications (27)	2020-21	06
		2019-20	10
		2018-19	06
		2017-18	05

**Academic Year : 2020-21**

S.No	Names of the Author	Title of the Paper	Name of the Journal	Indexing
1	<b>Ravi Sekhara Reddy Vuppuloori,</b> Vamsi krishna Velidi, Prabhakara Rao Bhima,	"Asymmetric single stub-Tapped stepped impedance unit for compact Rat-race coupler with ultra-wide range Harmonic suppression", Wiley	Microwave and Optical Technology Letters, Vol.63, Issue-2, February 2021, ISSN:1098-2760,	SCI
2	<b>Vuppuloori Ravi Sekhara Reddy,</b> Vamsi krishna Velidi, Bhima Prabhakara Rao,	Miniaturized Twelve-stubbed Microstrip balun with twelfth higher order harmonic suppression and improved bandwidths	Progress in Electromagnetic Research Letters, Vol. 94, 57-65, October 2020, ISSN:1937-6480,	ESCI
3	<b>Vuppuloori Ravi Sekhara Reddy,</b> Vamsi krishna Velidi, Bhima Prabhakara Rao,	Wideband harmonic suppressed compact rat-race coupler using triple stub M-shape unit ",	Progress in Electromagnetic Research Letters, Vol. 94, 81-90, February 2021, ISSN:1937-6480,	ESCI
4	<b>D. Ram Sandeep,</b> N. Prabhakaran, B.T.P. Madhav, K.L. Narayana, <b>P. Rakesh Kumar</b>	Systematic Investigation from Material Characterization to Modeling of Jute- Substrate-Based Conformal Circularly Polarized Wearable Antenna	Journal of Electronic Materials Vol. No-49 Issue-12 pp-7292-7307 ISSN No-0361-5235 DOI: 10.1007/s11664-020-08536-6 October-2020	SCI
5	<b>A. Guruva Reddy,</b> M. Madhavi, <b>P. Rakesh Kumar</b>	Compact Slotted Multipatch Antenna with Defected Ground Structure for Wireless Communication	Journal of Physics: Conference Series Vol. No-1706 Issue-1 pp-012150 ISSN No- 1742 6588 December-2020	Scopus
6	<b>Bondili Siva Hari Prasad,</b> M.V.S. Prasad	U Shaped Slot and Spiral Shaped Monopole Antenna with Defected Ground Structure for Wireless Applications	Solid State Technology Vol. No-63 Issue-5 pp- 3077-3089 ISSN No- 0038-111X November 2020	Scopus

**Academic Year : 2019-20**

S.No	Names of the Author	Title of the Paper	Name of the Journal	Indexing
1.	<b>B. Siva Hari Prasad,</b> Dr.M.V.S. Prasad	Design and Analysis of Compact Periodic Slot	Progress In Electromagnetics	Scopus

		Multiband Antenna with Defected Ground Structure for Wireless Applications	Research M, Vol. 93, June-2020,pp 77-87, ISSN: 1937-8726.hindex29,(esci journal)	
2.	<b>B.Y.V.N.R. Swamy</b> V. Deepak, K.V. Sai Teja, T. Akshay, B. Bhvanesh	Design and Analysis of compact dual band pentagonal circular ring patch antenna with defeted ground structure for wireless applications	JOURNAL OF ADVANCED RESEARCH IN DYNAMICAL & CONTROL SYSTEMS, VOL. 12, ISSUE.2,MARCH2020,DOI:10.5373/JARDCS/V12I2/S20201085, PP.697-703 ,ISSN: 1943-024X, H-INDEX-8,(SCOPUSJOURNAL).	Scopus
3.	<b>B. Siva Hari Prasad ,</b> Dr.M.V.S. Prasad	Tri Band CP Slot Antenna Backed with Dual FSS Selector	International journal of engineering and advanced technology, vol.8, issue 6s2, issn no: 2249-8958, august 2019(scopus journal).	Scopus
4.	<b>B. Siva Hari Prasad,</b> Dr.M.V.S. Prasad	Log Periodic Slot Based Monopole Antenna with Defected Ground Structure for Wireless and Satellite Communication Applications	Journal of advanced research in dynamical & control systems, vol-11, issue 7 , august 2019, issn: 1943-024x (scopus journal).	Scopus
5.	<b>B. Siva Hari Prasad</b> K. Anusha, S.N.S. Sandhya, T. Roopteja Reddy K. Aishwarya	Design and Analysis of Uwb Circular Ring Antenna with Defected Ground Structure	Journal of Advanced Research in Dynamical & Control Systems,Vol. 12, Issue. 2, March-2020, pp.685-696,doi:105373/jardcs/v12i2/s2021084, issn: 1943-024x,h-index-8, (scopus journal).	Scopus
6.	<b>P. Rakesh Kumar,</b> A.Guruva Reddy, K.Satya Prasad	Design and Analysis of Wideband Circular Ring Fractal Patch Antenna using Defected Ground Structure	International Journal of Advanced Science and Technology, Vol. 29, No. 5, (2020), pp. 9405-9416, Vol. 29, No. 5, April 2020,	Scopus

			pp. 9405-9416, ISSN: 2005-4238, H-Index-3, (SCOPUS JOURNAL).	
7.	<b>P. Rakesh Kumar</b> M. Pujitha, U. Shanmukha Nadh, G. Bindhu Sai, J. Sivaji Naik	Design and Analysis of Multiband Microstrip Patch Antenna with Defected Ground Structure for Wireless and Saellite Communication Applications	Journal of Advanced Research in Dynamical & Control Systems, Vol. 12, Issue. 2, March-2020, DOI:10.5373/JARD CS/V12I2/S20201034, pp: 623-635. ISSN: 1943-024X H- Index-8, (SCOPUS JOURNAL).	Scopus
8.	<b>P. Rakesh Kumar</b> M. Pavan Swaroop Reddy, N. Mary Stella, Sk. Ameer Hussain Maa, A. Naga Sai Kumar Reddy	Design and Analysis of Compact Ultra wideband Microstrip Patch Antenna using Defected Ground structure for Wireless Applications	Journal of Advanced Research in Dynamical & Control Systems, Vol. 12, Issue.2, March-2020, pp.636-645, DOI:10.5373/J ARDCS/V12I2/S20201035, ISSN: 1943-024X, H-Index-8, (SCOPUS JOURNAL).	Scopus
9.	<b>V. Ravi Sekhar Reddy</b> G. Raja Rajeswari, B. Sandeep,, S. Ravali, K. Prabhu Kiran	Design of Harmonic Suppressed Rat Race Coupler with Size reduction using single shunt open stub unit	International Journal of Advanced Science and Technology, Vol. 29, Issue.03, Feb 2020, pp.3641-3650, ISSN: 2207-6360, H.Index-4 (SCOPUS JOURNAL).	Scopus
10.	<b>V. Ravi Sekhar Reddy</b> G.V. Sai Divya, B. Bhanu Prakash, B. Ravi Shankar, J. Sailaja	Design of Harmonic suppressed Branch Coupler with size reduction using three shunt open stub unit	International Journal Of Advanced Science And Technology, Vol. 29, Issue.03, Feb 2020, Pp.3651-3659, ISSN: 2207-6360, H.Index-4, (SCOPUS JOURNAL).	Scopus

#### Academic Year : 2018-19

S.No	Names of the Author	Title of the Paper	Name of the Journal	Indexing
1.	<b>Mr. P. Rakesh Kumar</b> , A. Guruva Reddy , K. Satya Prasad	Design of Analysis of Wideband Hexagonal Circular ring Patch Antenna using Defected Ground Structures	Journal of Advanced Research in Dynamical & Control Systems, 02-Special Issue , May 2019, Volume 2, Page No	Scopus

			1037-1045.	
2.	<b>Banothu. Y.V.N.RSwamy,</b> Polepalli Siddaiah	Design of a Compact 2×2 Multi Band MIMO Antenna for Wireless Applications	International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-7 Issue-6S2, April 2019	Scopus
3.	<b>Mr .B. Siva Hari Prasad,</b> T. Madhu Priya, T. Pavan Kumar, B. Vamsi, N. Venkaiah Babu	Design of a Wide Band microstrip patch antenna for X-band and Ku-band Applications	International Journal of Technical Innovation in Modern Engineering & Science, e-ISSN: 2455-2585, Volume 5, Issue 04, April-2019	Scopus
4.	<b>P.RakeshKumar</b> K.V.N.Kavya, CH.J.V.Madhavi, K.Vinay Kumar, M.Narendra Kumar	Design and Performance Analysis of Wideband Hexagonal Ring Antenna with Defected Ground Structure	International Journal of Innovative Technology and Exploring Engineering (IJITEE)ISSN: 2278-3075, Volume-8, Issue-7S, May 2019	Scopus
5.	<b>Mr.P.Rakesh Kumar ,</b> Minakshmi Shaw,	Analytical Study on Lowpass Filter with I-Shaped Defected Ground Structures for Medical ISM Band Applications	International Journal of Pharmaceutical Research, ISSN:0975-2366, Vol 10, Issue 3,Page No 565-573,July-September 2018,Scopus Indexed Journal	Scopus
6.	<b>Banothu.Y.V.N.R Swamy,</b> Dr.P.Siddaiah	Design of a compact wide Band MIMO antenna with improved Isolation by Decoupling structure made by EBG	Journal of Advanced Research in Dynamical & Control systems, ISSN:1943-023X, Vol.10, Special Issue-04, Page No 1986- 1994, September 20, 2018 Scopus Indexed Journal	Scopus

#### Academic Year : 2017-18

S.No	Names of the Author	Title of the Paper	Name of the Journal	Indexing
1.	<b>P.Rakeshkumar,</b> A.GuruvaReddy, K.satya Prasad	Equivalent circuit model of novel tri band Defected Grounded Structure based patch antenna for	Revista de la Facultad de Agronomia de la Universidad del Zulia journal,	SCI

		WiMax/WLAN applications	ISSN:0378-7818,2017,Voloume no 34-4 issue, Page No :638-645, Impact Factor 0.145,H Index-5, SCI Journal,	
2.	<b>K.Rani Rudramma,</b> P. Siddaiah, Dr. M. N. Giri Prasad	Design and Analysis of Band Notched Wide Band Metamaterial Integrated U &T Shaped Patch with Strip Line Antenna for Wireless Application	Helix Vol. 8(1): 2747- 2752,ISSN 2319 – 5592 (Online),DOI 10.29042/2018-2747-2752.2017,ESCI Journal	eSCI
3.	<b>B.Y.V.N.R Swamy,</b> P. Siddaiah	Orthogonal Polarization Position Based MIMO Antenna For Wireless Applications	Helix, Vol. 8(1): 2658- 2663, ISSN 2319 – 5592 (Online) DOI 10.29042/2018-2658-2663,2017,ESCI Journal	eSCI
4.	<b>B.Siva Hari Prasad,</b> Nagarjuna, V. Srikanth, J.V.S.R.K. Prasad	Dual Band H-shaped Antenna-filter-antenna based frequency selective for Q-band surface applications	INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS, <u>Vol- 6,</u> <u>Issue- 1</u> March 2018,ISSN:2320-2882.	Scopus
5.	<b>V. Ravi sekhara Reddy,</b> N .Sai venkat, , A. Ravindra, Y. Sreekanth	Miniaturization of Rat-race coupler with Harmonic suppression technique	International Journal of Research, Volume 05 Issue 12 April 2018,e-ISSn:2348-6848,UGC Approved Journal	Scopus

### Conferences Attended by Faculty @ Advanced Communication Lab

<b>S.NO</b>	<b>Category</b>	<b>Academic Year</b>	<b>Quantity</b>
<b>1</b>	<b>Papers Presented in Conferences/seminars/Symposiums (09)</b>	<b>2020-21</b>	<b>02</b>
		<b>2018-19</b>	<b>02</b>
		<b>2017-18</b>	<b>05</b>

### List of Conferences Attended by the Faculty

S.No	NAME	PROGRAMME	PLACE	PERIOD
1.	Prof B. Ramesh reddy	International Conference on Intelligent computing in control and communication “ <b>Shaped Beams from Circular Aperture Antennas</b> ”	Aditya Institute of Technology and Management, Tekkali, Srikakulam	07 - 08, August 2020. (2020-21)
2.	Mr P.Rakesh Kumar	First International Conference on Advances in Physical Sciences and Materials “ <b>Compact Slotted Multiband Patch Antenna with Defected Ground Structure for Wireless Communication</b> ”	SNS College of Technology, Coimbatore, Tamil Nadu	13 - 14, August 2020. (2020-21)
3.	Mr. P. Rakesh Kumar	INTERNATIONAL CONFERENCE IN ADVANCED COMMUNICATION TECHNOLOGIES " <b>Design of Analysis of Wideband Hexagonal Circular ring Patch Antenna using Defected Ground Structures</b> "	Sir C R Reddy Engineering College	26 th – 27 <sup>th</sup> April, 2019. (2018-19)
4.	Mr. B.Siva Hari Prasad	International Conference on Computational and Intelligent Techniques for Automation of Engineering Systems “ <b>TRI BAND CP SLOT ANTENNA BACKED WITH DUAL FSS REFLECTOR</b> ”	GEC, Gudlavalleru	Nov 30-Dec 1, 2018. (2018-19)
5.	Mr.M.K.Linga Murthy	International Conference on Engineering Science & Technology and Intelligent Applications “ <b>Compact Design of Hexagonal Monopole Antenna for UWB Applications Suppression of Artifacts for Mobile ICG using Non -Linear Adaptive Algorithms</b> ”	Vikas College of Engineering and Technology, Nunna.	30 <sup>th</sup> June 2018. (2017-18)
6.	Mr B.Siva Hari	International Conference on Electrical, Electronics, Computers, Communication, Mechanical and Computing (EECCMC) “ <b>Multilayer Bandstop Frequency Selective Structures with multiple transmission Zeros/Poles</b> ”	Priyadarshini engineering college, Vaniyambadi, Tamilnadu	28 <sup>th</sup> -29 <sup>th</sup> January 2018. (2017-18)
7.	Mr B.Y.V.N.R.Swamy	Conference on Signal Processing and communication engineering systems SPACES-2018 “ <b>Designing a compact MIMO antenna by inverting SRR element to improve performance</b> ”	KLEF, Vadeswaram	4 <sup>th</sup> -5 <sup>th</sup> January 2018. (2017-18)
8.	Mr B.Y.V.N.R.Swamy	International Conference on Advanced Communication Systems “ <b>Design and Analysis of a 4 element Dual band MIMO antennas with meta material based reduced ground plane for future wireless applications</b> ”	S.V.Engineering College for Women, Tirupathi	20 <sup>th</sup> -22 <sup>nd</sup> October 2017. (2017-18)
9.	Smt Rani Rudrama Kodali	International Conference on Advanced Communication Systems “ <b>Metamaterial inspired band notched wideband antenna with an integration of U and T shaped patches with strip lines wireless applications</b> ”	S.V.Engineering College for Women, Tirupathi	20 <sup>th</sup> -22 <sup>nd</sup> October 2017, (2017-18)

### Details of Student Utilizations @ Advanced Communication Lab

S.NO	Category	Academic Year	Quantity
2.	Main Projects Carried out (21)	2020-21	05
		2019-20	06
		2018-19	02
		2017-18	03
S.NO	Category	Academic Year	Quantity
1.		2019-20	06



	<b>Paper Publications (14)</b>	<b>2018-19</b>	<b>02</b>
		<b>2017-18</b>	<b>02</b>

**LIST OF STUDENT PROJECTS @ ADVANCED COMMUNICATION LAB**

**A.Y:2020-2021**

<b>S. No</b>	<b>Title of the Project</b>	<b>Regd. No</b>	<b>Name of the Guide</b>
<b>1</b>	Design And Analysis Of Reconfigurable Antenna For Wireless Applications	17761A0443 17761A0448 17761A0407 17761A0407	Dr.P. Rakesh Kumar
<b>2</b>	Wearable Antennas For Biomedical Applications	17761A0468 17761A04A3 17761A04A0 17761A0489	Smt. K. RaniRudrama
<b>3</b>	Tri-Band Planar Monopole Antenna Using Defected Ground For Wireless Applications	17761A0465 17761A04A4 17761A0463 17761A04B9	Mr.B. Siva HariPrasad
<b>4</b>	Multi-band 6 shaped microstrip patch antenna for 5g applications	17761A04F1 17761A04C3 17761A04H3 18765A0433	Dr.B.Y.V.N.R. Swamy
<b>5</b>	Analysis and design of antenna for wireless applications	17761A04E9 18765A0435 18765A0438 17761A04C6	Dr.P. Rakesh Kumar

**A.Y:2019-2020**

<b>S. No</b>	<b>Title of the Project</b>	<b>Regd. No</b>	<b>Name of the Guide</b>
<b>1</b>	Design and Analysis of Compact Dual Band Pentagonal Circular Ring Patch Antenna with Defected Ground Structure for Wireless Applications	16761A04H8 16761A04H9 16761A04H3 16761A04C8	B. Y.V.N.R.Swamy
<b>2</b>	Design And Analysis Of Uwb Circular Ring Antenna With Defected Ground Structure	16761A0429 16761A0446 16761A0449 17761A0405	B. Siva Hari Prasad
<b>3</b>	Design and Analysis of Multiband Microstrip Patch Antenna with Defected Ground Structure for Wireless and Satellite Communication Applications	16761A0434 16761A0451 16761A0417 16761A0418	P. Rakesh Kumar
<b>4</b>	Design and Analysis of Compact Ultra Wideband Microstrip Patch Antenna Using Defected Ground Structure for Wireless Applications	16761A04F6 16761A04F7 17765A0433 16761A04C2	P. Rakesh Kumar

5	Miniaturization Of Rat-Race Coupler With Harmonic Suppression For Wireless Communication	16761A0478 16761A0468 16761A04A2 16761A0474	V. Ravi Sekhara Reddy
6	Design of harmonic suppressed Branch Line Coupler with size reduction using Three shunt open stub unit	16761A04E1 16761A04C5 16761A04C7 16761A04E5	V. Ravi Sekhara Reddy

<b>A.Y:2018-2019</b>			
<b>S. No</b>	<b>Title of the Project</b>	<b>Regd. No</b>	<b>Name of the Guide</b>
1.	Design of a Wide Band micro strip patch antenna for X-band and Ku-band Applications	15761A04H2 15761A04F7 15761A04C4 15761A04G1	Mr .B. Siva Hari Prasad
2.	Design and Performance Analysis of Wideband Hexagonal Ring Antenna with Defected Ground Structure	15761A04D9 15761A04E6 15761A04F3 16765A0428	Mr. P. Rakesh Kumar

<b>A.Y:2017-2018</b>			
<b>S. No</b>	<b>Title of the Project</b>	<b>Regd. No</b>	<b>Name of the Guide</b>
1.	Miniaturization of micro strip antenna for wireless applications based on meta materials meta surface	14761A0462 14761A04A2 14761A04B1	Dr. J. Babu
2.	Dual band H-shaped Antenna Filter Antenna based Frequency Selective Surface for Q-band Applications	14761A04C8 14761A04H6 14761A04D9	Mr.B. Siva Hari Prasad
3.	Miniaturization of rat race coupler with harmonics suppression.	14761A04F8 15765A0425 15765A0436	Mr.V. Ravi Sekhar Reddy

<b>A.Y:2016-2017</b>			
<b>S. No</b>	<b>Title of the Project</b>	<b>Regd. No</b>	<b>Name of the Guide</b>
1.	Design of a Multi-Band Microstrip with Defected Ground Structure using HFSS	13761A04F8 13761A04G4 13761A04D8 13761A04D5	Mr.P. Rakesh Kumar
2.	Design of compact branch line coupler with pre determined bandwidth and harmonic suppression	13761A04B4 14761A0413 14761A0424 13761A04B0	Mr.V. Ravi Sekhar Reddy
3.	Design of band stop filter using RAT-RACE Coupler	13761A04B6 13761A04B5 14761A0423 14761A0419	Mr.V. Ravi Sekhar Reddy
4.	Design and Simulation of Planar Inverted F Antenna (PIFA) for Mobile Handset Applications	14765A0427 13761A04E3 14765A0436 14765A0435	Mr. K. Rama Krishna
5.	Design of circular ring FSS in X-band	13761A0433 14765A0408	Mr.B. Siva Hari Prasad

		<b>14765A0410</b> <b>14765A0404</b>	
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**Lab Mentor** : Dr. A. Narendra Babu, Professor  
**Lab Incharge** : Dr. P . Rakesh Kumar, Associate Professor  
**Lab Co – Incharge** : Dr. B. Siva Hari Prasad, Associate Professor  
**Tr.Lab Technician** : Mr.Y.Chinna Jamalaiah