

Department of Electronics & Communication Engineering

INTRODUCTION

Establishment

The Department of Electronics & Communication Engineering was formed by trifurcation of the Department of Electrical Engineering in year 1984.

Mission

The Department has formulated a long term planning; process and action plan to achieve highest standards in teaching and research. It has identified the core issues to be addressed immediately and working strategy to strengthen the existing infrastructure, facilities and improving the standards

Mandate

The Department of Electronics & Communication Engineering has set the objectives for attaining the growth and development in academic activities. It has identified the core issues to be addressed immediately and working strategy to strengthen the existing infrastructure, facilities and improving the standards. The overall development process has been envisaged as:

HISTORICAL DEVELOPMENTS

Programme of Study	Description
B. Tech. Electronics & Communication Engg.	Started with 14 seats in Year 1984-85 Intake increased to 30 in 1994 Intake increased to 60 in 1999 Intake increased to 75 in 2008 Intake increased to 85 in 2011 Intake presently is 60 in 2014
M. Tech. Electronics & Communication Engg.	Started with 06 seats in Year 2000-2001 Intake increased to 18 in 2006-07 Present intake is 06 in 2014-15
Ph.D. Electronics & Communication Engg.	Started with intake of 05 seats in 2001 At Present the intake is One.

TEACHING STAFF

Name of Post	Number of Teaching staff
Professor	2
Assistant Professor	4
Teaching Personal	5

Non Teaching Staff/Sporting Staff

Name of Post	Number of Staff
Lab Assistant	5+3*
Lab Attendant	1*
Mail Messenger	1
Senior Assistant	1
D.A.	1*

*** Contractual**

Laboratories

- Electronics Laboratory
- Computer Laboratory
- Microwave Laboratory
- Communication Laboratory
- Microprocessor Laboratory
- Optical Fiber Laboratory
- Digital Signal Processing Laboratory
- Electronics Design Lab
- Advance P.G. Lab

List of Publications

- (1) **Gangwar R. P. S., Mathur S. & Avinash Kumar, “Neural network implementation of Transmission Line Model for loss evaluation in sand and dust Storms” Indian J Radio & Space Physics, 33(2004) 316.**
- (2) **Gangwar R. P. S., Mathur S. & Avinash Kumar, “The aL^b and cV^d relations in absorption loss evaluation in sand and dust storms” IE(I) Journal-ET,87(2007)38.**

- (3) Amarjit & Gangwar, R. P. S., "The finite element approach for evaluation of extinction cross section of realistically distorted raindrops", **Indian J Radio & Space Physics**, **37(2008)114**.
- (4) Gangwar Som Pal, Paras & Gangwar, R. P. S., "Resonant frequency of circular microstrip antenna using artificial neural networks", **Indian J Radio & Space Physics**, **37(2008)204**.
- (5) Amarjit and Gangwar, R. P. S. "Implementation of artificial neural network for prediction of rain attenuation in microwave and millimeter wave frequencies", **IETE**, **54-5 (2008)346**.
- (6) Amarjit & Gangwar, R. P. S. "The simple mathematical model for prediction of rain attenuation in microwave and millimeter wave frequencies." **IE(I) Journal-ET**, **90(2009)41**.
- (7) Matuhr Sanjay and Gangwar R. P. S. "A decision directed smart antenna system with neural estimation for quadrature amplitude modulated signals", **Indian J Radio & Space Physics**, **39(2010)45**.
- (8) Dileep Kumar and Gangwar R.P.S., "Design and Simulation of a Microstrip-fed, Rectangular Slotted Patch Antenna with Wide Rectangular Slot on the Ground Plane", **Int. J. of Recent Trends in Engineering and Technology**, **4(2010)105**.
- (9) Paras and Gangwar R.P.S., "Design of a Compact GA-Optimized Annular-Slot Multiband Circular Microstrip Antenna", **International Journal of Emerging Microwave and Optical Technology**, **1(2011)5**.
- (10) Mukta Jukaria and Gangwar R.P.S., "Hybrid Miniaturized Tri-band Planar Inverted-F Antenna (PIFA)", **197(2011)204**.

- (11) Chitra Singh and Gangwar R.P.S. ,“Design and Simulation of Circularly Polarized Compact Microstrip Patch Antenna for C-Band Applications”, International Journal on Computer Science and Engineering (IJCSE) 3(2011)1175.
- (12) Paras and Gangwar R.P.S., “Design of Compact and Multiband Antenna Array using Genetic Algorithm Optimization”, International Journal of Microwave and Optical Technology, 6(2011)221.
- (13) Mukta & R. P. S. Gangwar, “Hybrid Miniaturized TribandPlannar Inverted-F Antenna (PIFA)”, Trends in Network & Communicators in Computer and Information Science, Vol.197(2011)204-212 springr.
- (14) Chitra Singh and R.P.S. Gangwar, “Computer Aided Design and Simulation of a Multiobjective Microstrip Patch Antenna for Wireless Applications”, (IJACSA) International Journal of Advanceed Computer Science and Applications, Vol. 2, No 3, March 2011, Page 110-117.
- (15) Chitra Singh & R. P. S. Gangwar, “Design and Simulation of Circularly Polarized Compact Microstrip Patch Antenna for C-Band Applications”, International Journal on Computer Science and Engineering (IJCSE), Vol. 3 No. 3 Mar 2011, Page 1175-1182.
- (16) Chitra Singh & R. P. S. Gangwar, “Design and analysis of a Compact low cost patch antenna for different wireless operators”, Emerging Trends in Networks and Computer Communications (ETNCC), 2011. International Conference, Page 8-12, 22-24 April, 2011, IEEE publisher.
- (17) Chitra Singh & R. P. S. Gangwar, “A Design and Simulation of Slotted Patch Antenna with Improved Radiation Pattern”, Emerging Trends in Networks &

Computer Communication (ETNCC), 2011 International Conference, Page 271-273, 22-24 April 2011, IEEE publisher.

(18) Ankita, R.P.S. Gangwar and Paras,”Multi-Band Two-layer Microstrip Stacked Patch Antenna with Wide Ground Slot for Wireless Communications”, International Journal of Emerging Microwave and Optical Technology, Vol.2(2012)29.

(19) Shakti S Chauhan, R.P.S. Gangwar, Abhay Sharma, “Internal Compact Printed Loop Antenna With Matching Element For Laptop Applications”, International Journal on Computer Science and Engineering (IJCSE), Vol. 5 Sep 2013, Page 797-805.

(20) Anup Raghuvanshi & R.P.S. Gangwar, “Compact Multiband Monopole Antenna for Wireless Applications”, Microwave & Photonics (ICMAP), 2013, International Conference, Page 1-5, 13-15 Dec, 2013, IEEE Publisher.

(21) Neha Singh & R.P.S. Gangwar, “Design and Simulation of Internal Multiband Planar Inverted- F Antenna For Mobile Terminals”, Conference on Advances in Communication and Control Systems 2013 (CAC2S 2013) p 455-458.

(22) Dr Sanjay Mathur and others, Comparison of Measured and Predicted Evapotranspiration using Artificial Neural Network Model Journal of Academic and Industrial Research, Volume 1(12), May 2013, pp 816

(23) Chandra Prakash & R.P.S. Gangwar, “Spiral Shaped, Multilayered, Microstrip Antenna Implanted in Vitreous Humor in Med-Radio Band”, International Journal of Electronic and Electrical Engineering, ISSN 0974-2174, Vol. 7, Number 2 (2014), pp. 143-148, International Research Publication House.

(24) Kaushal Gangwar, Paras & R.P.S. Gangwar, “Metamaterials: Characteristics, Process and Applications: Advance in Electronic and Electric Engineering, ISSN 2231-1297, Vol 4, Number 1 (2014), pp 97-106.

(25) Abhishek Tomar, Ramesh K. Pokharel, Haruichi Kanaya, and Keiji Yoshida, “Design of Monotonic Digitally Controlled Oscillator (DCO) for Wide Tuning Range” International Journal of Communications & Electronics ,Volume. No. 1, Issue No. 3, Sep – Dec 2013.

Abstracts in International Conference

(i) Amarjit, & Gangwar, R. P. S. and Joshi, M. C., “Fuzzy inference system for prediction of rain attenuation in microwave and millimeter wave frequencies”, International Conference on Advances in Mathematics: Historical Developments & Engineering Applications, Pantnagar, December 19-22, 2007.

(ii) Devesh Joshi, Abhishek Tomar, Navneet Kumar, and Ramesh Pokharel, “High Gain CMOS Power Amplifier for Ultra-Wideband (UWB) Application” AICTE Sponsored Second International Conference on Communications & Electronics (ICCE - 2013).

(iii) Abhishek Tomar, Ramesh K. Pokharel, Haruichi Kanaya, and Keiji Yoshida, “Design and implementation of 11 bit Digital to Analog Converter with novel digital design approach” AICTE Sponsored First International Conference on Communications & Electronics (ICCE - 2012)

National Conferences

- (i) Rajesh Shyam Singh & R. P. S. Gangwar, “Ultra wide band E-shaped microstrip patch antenna for wireless communications” National Conference on Wireless and Optical Communication, December 18-19, 2008, Chandigarh.
- (ii) Paras and R.P.S. Gangwar “Design of wide band slotted ground stacked circular microstrip antenna with dual probe feed” National Conference on Wireless and Optical Communication, December 18-19, 2008, Chandigarh.
- (iii) Kuldip Kumar and R. P. S. Gangwar “Design of Multi-Band Microstrip Antenna” National Conference on Wireless and Optical Communication, December 18-19, 2008, Chandigarh.
- (iv) Rajesh Singh, R. P. S. Gangwar, Mohit Goswami, B. K. Pandey and Mayank Tiwari, “International Conference on Advances in Computing & Communication Engineering (ICACCE-2014), BTKIT, Dwarahat, pp255-258

Papers Communicated/Accepted

- (i) Preeti Rani & R. P. S. Gangwar, “Multiband planar Inverted- F antenna for Mobile Phones”, Journal of the Institution of Engineers (India), Series B.
- (ii) Sanjay Dutt & R. P. S. Gangwar, “Ultra Wideband Patch Antenna for Land Based Vehicles”, Journal of the Institution of Engineers (India), Series B.
- (iii) Chandra Prakash and R. P. S. Gangwar, “Six Layers Circular Microstrip Antenna Implanted in a Phantom of Vitreous Humor” accepted in IEEE MTT-S International Microwave Workshop Series on RF and Wireless Technologies for Biomedical and Health Applications (IMWS-Bio 2014), 8-10 December 2014, London, United Kingdom

Participation in Summer/Winter Institutes/ Training/ Workshop

- (i) Metallurgical failures and their remedial at university of Roorkee, Roorkee under QIP center from 27-06-1995 to 11-07-1995.**
- (ii) Advances in thermal processing of fruits and vegetables at GBPUAT, Pantnagar from 17-07-1996 to 05-08-1996.**
- (iii) Computer training for data storage and statistical analysis for agricultural research at GBPUAT, Pantnagar from 02-03-2002 to 22-03-2002.**
- (iv) Short term training programme on introduction to office XP and computer application, GBPUAT, Pantnagar, 06.12.2004 to 17.12.2004.**
- (v) Training on capacity building v) Training on capacity building programme, at Mukteshwar, Uttranchal from 24.09.2005 to 26.09.2005.**
- (vi) International Training on automation at Australia from 27.08.2007 to 31.08.2007.**
- (vii) Work shop on effective teaching pedagogy to maximize learning at College of Technology, GBPUAT, Pantnagar in collaboration with University of Illinois at Urbana-Champaign , USA from 02.01.2008 to 03.01.2008.**
- (viii) Programme on Managing for sustainable competitive advantage for college of Technology, Pantnagar University held during 22-24, 2008 at IIM Lucknow.**
- (ix) Workshop on New guidelines for Accreditation for Institution and Assessors of National Board of Accreditation (NBA) AICTE from 21.08.2009 to 22.08.2009 organized by AICTE, New Delhi & UTU, Dehradun.**
- (x) 1st World Summit on Accreditation (WOSA-2012) organized by National Board of Accreditation during 25.03.2012 to 28.03.2012 at New Delhi.**
- (xi) TEQIP Conclave of Educators and Quality of Delivered Academics in Mechanical Sciences Workshop during 22.12.2012 to 23.12.2012 jointly organized by NPIU & IIT, Kanpur.**
- (xii) NBA Workshop for Experts/Evaluators/Stakeholders on Outcome Base Education on 25th Sep 2013 (One day webinar) and 17th to 19th October 2013 (Three Days Personal Training) organized by JSS Academy of Technical Education, Noida in association with National Board of Accreditation (NBA), New Delhi.**
- (xiii) Workshop on Quality Initiative in Technical & Higher Educational Institutions during 02.02.2014 to 04.02.2014 at Hyderabad.**

(xiv) International Conference on Advances in Computing & Communication Engineering (ICACCE-2014) as a Session Chair during 22.02.2014 to 23.02.2014 organized by Bipin Tripathi Kumaon Institute of Technology, Dwarahat.

(xv) National Symposium on Instrumentation (NSI-39) as a Session Chair held at Faculty of Engineering & Technology, Gurukul Kangri University, Haridwar from October 15-17, 2014.

(xvi) Short term course on e-Governance in Technical Education, NITTTR Chandigarh during 21-25 July, 2014.

Students Guidance

(a) Ph. D Thesis Guided:

- (i) “Development of models for prediction of rain attenuation in microwave and millimeter wave frequencies” (2009)
- (ii) “A Design Directed Approach for Blind Adaptation of Smart Antenna systems Using Complex Neural Estimation” (2009)
- (iii) “Design and Simulation of Powerless and Groundless full Adder Cells and their Application in Median Filters” (2009)
- (iv) “Compact and Multiband Array of Circular Microstrip Antenna Optimized using Genetic Algorithm” (2011)

(b) M. Tech Theses Guided:

- (i) Neural Network Modeling for the calculation of resonant frequency of circular microstrip antenna (2005).
- (ii) Analysis and design of annular ring microstrip antenna using genetic algorithm (2006).
- (iii) Design of single-feed triple band planar inverted-F antenna with two U-shaped slots using IE3D software (2007).
- (iv) Design and simulation of Multi-Band Microstrip Antenna (2008).
- (v) Design and simulation of wide Band E-Shaped microstrip patch Antenna with Slots (2009).
- (vi) Design and Simulation of Hybrid Miniaturized Planar Inverted –F Antenna (PIFA) for Wireless Communications (2010).

- (vii) Design and Simulation of Multiband Planer Inverted-F Antenna (PIFA) with a Slot on Ground Plane (2010)**
- (viii) Design and Simulation of Circularly Polarised, Multi-Band Patch Antenna for Wireless Applications (2011).**
- (ix) Design and Simulation of Multi-Band Stacked Microstrip Patch Antenna with Wide Ground Slot for Wireless Communications (2011).**
- (x) Design and Simulation of Circularly Polarized, Compact Microstrip Antenna for Ultra Wide Band (UWB) Application (2012).**
- (xi) Design and Simulation of Internal Multiband Planar Inverted-F Antenna for Mobile Terminals (2012).**
- (xii) Design and Simulation of Multiband Planar Inverted-F Antenna Mobile Phone Applications (2012).**
- (xiii) Design and Simulation of Internal Compact Printed Loop Antenna with Matching Element for Laptop Applications (2012).**
- (xiv) Compact Multiband antenna for Wireless Applications (2013).**
- (xv) Design of a 6-10.6 GHz flat gain CMOS RF power amplifier (2013).**
- (xvi) Design of 2.4 GHz low noise amplifier using current reuse technique in standard CMOS (2013).**
- (xvii) Design of Folded Mixer Using Multi-Tanh Technique in 0.18 μm CMOS Technology for UWB Application (2013).**
- (xviii) A Comparative Study of Digital Integrators and Application in Designing of Discrete Filters for High Speed Control Systems (2013).**
- (xix) Design of Wide Band Patch Antenna Partially Loaded with Left-Handed Metamaterial (2013).**
- (xx) Multiband Planar Inverted- F antenna for Mobile Phone (2014).**
- (xxi) Ultra Wideband Patch Antenna for land based Vehicles (2014).**
- (xxii) Design of ultra low power, quadrature phase LC-voltage controlled Oscillator (2014).**
- (xxiii) Modelling and Optimization of a ring type voltage controlled oscillator using neural network (2014).**

(xxiv) Gain Enhancement of Microstrip Patch Antenna Using Left Handed Metamaterial (2014).

(xxv) Multiband High Gain Microstrip Patch Antenna Inspired by Metamaterial Structures (2014).

AWARDS/HONOURS/RECOGNITIONS

Dr R. P. S. Gangwar has been appointed as the expert member for different committee in TEQIP-II, AICTE, NBA etc. He is also a member of Handicapped Welfare Federation.