

ANNUAL PROGRESS REPORT (2021-22)

01 July 2021- 30 June 2022

Department of Electronics & Communication Engineering

Faculty of Engineering & Technology, GKV Haridwar

About the Department:

Electronic systems are something we take for granted. We use cell phones, computers, fitness sensors, navigation systems and video games like a natural thing. But without electronic systems, none of the electronics surrounding us would have worked. Department of Electronic & communication Engineering (ECE) teaches and do research into further development of this technology. Today's and tomorrow's requirements for advanced communication solutions, energy efficiency, and storage capacity lay the foundation for the Department's work in areas such as microelectronics, wireless technology, navigation, signal and image processing, voice and music technology and nanotechnology. Department of Electronic & communication Engineering is one of Five departments at Faculty of Engineering & Technology, Gurukula Kangri (Deemed to be University), Haridwar. The Faculty is located at Shardhanand puram, Bhadrabad Haridwar.

Department was established in 2001. It was the pioneer department of FET. Department was started with 30 seats but since its inception it has been the best department and its intake has now increased to 115.

Head of the Department: Dr. Vipul Sharma

Faculty Members:

1. Dr. Tanuj Garg
2. Dr. Gorav Kumar Malik
3. Dr. Ashish Nainwal
4. Mr. Anuj Kumar Sharma
5. Mr Shiv Kumar Singh
6. Mr. Prateek Agarwal
7. Mr Atul Varshney
8. Mr. Amrish
9. Mr. Vivek Arya

1. Publication work/Research work
 - A. Number of Research Paper Published:**07 (Annexure-1)**
 - B. Number Project Completed/Ongoing: **01 (Annexure-2)**
2. Paper presented in Seminars/Conference/Webinar/Workshop: **02 (Annexure-3)**
3. Awards from Society or Government: **01 (Annexure-4)**
4. No. of Seminars/Conferences/Webinar/Workshop organized: **01(Annexure-5)**
5. Any other Important Information's: (**Annexure-6**)
 1. Book Chapter Published :- 2
 2. List of patent published/granted by the department:11
 3. FDP/STC/Refresher course attended by the faculty:- 23

Head
Department of ECE
Faculty of Engineering & Technology

Annexure-1

Details of Research Publications

1. Ashish Nainwal, “An ECG classification using DNN classifier with modified pigeon inspired optimizer” Multimedia tools and application, 2022, ISSN: 1380-7501, pp:9131-9150 ,Vol.81(7) <https://www.scopus.com/sourceid/25627>
2. Ashish Nainwal, “Arrhythmia classification based on improved monarch butterfly optimization algorithm” Journal of King Saud University – Computer and Information Sciences, 2022, ISSN: 1319-1578, pp:5100-5109,Vol. 34(8) <https://www.scopus.com/sourceid/21100389724>
3. Ashish Nainwal, Gorav Malik, Amrish jangra “Convolution Neural Network Based COVID-19 Screening Model” advances in systems science and applications, 2022, ISSN:1078-6236, pp:31-39, Vol.21(3) <https://www.scopus.com/sourceid/19700175755>
4. Atul Varshney, “Dodecagon-Shaped Frequency Reconfigurable Antenna Practically Loaded with 3-Delta Structures for ISM Band and Wireless Applications” IETE Journal of Research,2022, ISSN:0377-2063(online), <https://www.scopus.com/sourceid/130012>
5. Atul Kumar Varshney,Vipul Sharma, “Low cost ELC-UWB fan shaped anteenaa using parasitic SSR triplet for ISM band and PCS application” International Journal of Electronics Letters,2021, ISSN:2168-1724, pp:391-402,Vol. 10(4) <https://www.scopus.com/sourceid/21100854223>
6. Vivek Arya, Tanuj Garg,” Leaky Wave Antenna: A Historical Development” Microwave Review,2021, ISSN:2406-1050, pp:3-16,Vol. 27(1) <https://www.scopus.com/sourceid/21100218075>
7. Gorav kumar Malik, “Multiclass Arrhythmia Classification Based On Support Vector Machine Optimized By Grasshopper Optimization Algorithm” Indian Journal of Computer Science and Engineering (IJCSE), 2022, ISSN:0976-5166, pp:525-535 ,Vol.13(2) <https://www.scopus.com/sourceid/21100913891>

Annexure-2

1. Dr. Tanuj Garg has been awarded a DRDO-funded research project titled "Beam scanning rate enhancement in leaky wave antenna at X-Ku at a fixed frequency." The duration of the project is 3 years, and the total fund is Rs. 33.43570.

Annexure-3

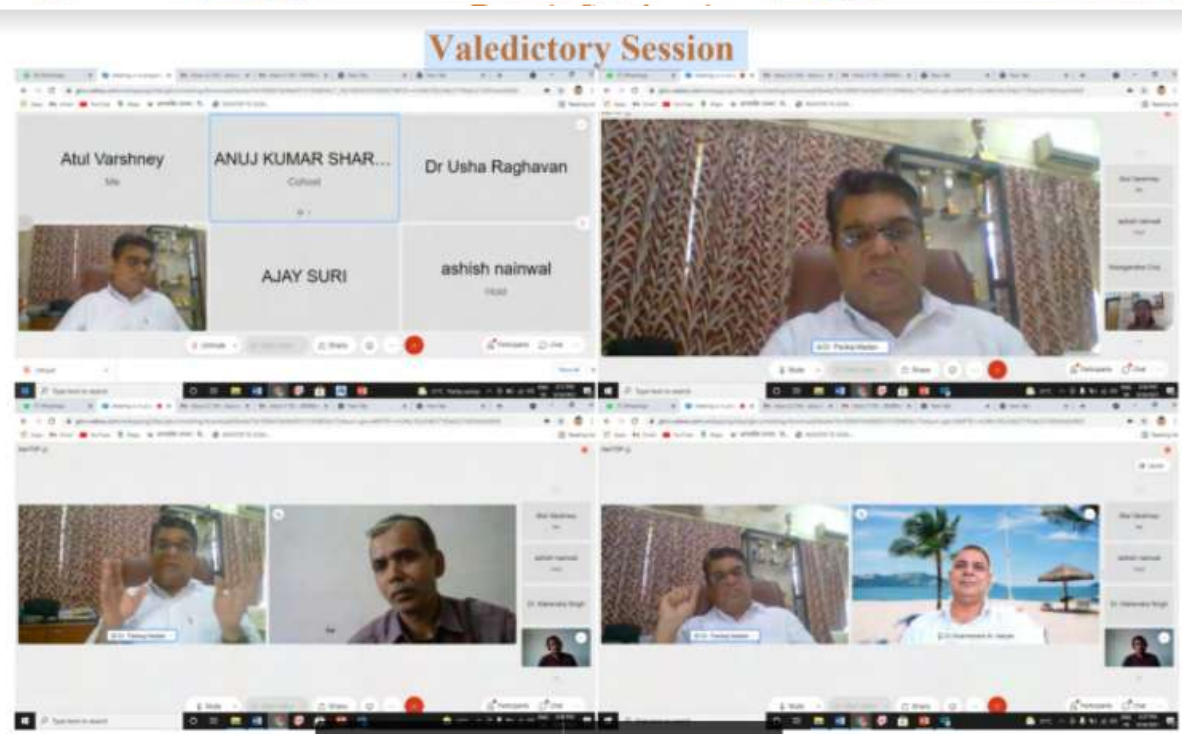
1. Mr. Vivek Arya presented a paper titled "Enhanced Bio-inspired Trust and Reputation Model for Wireless Sensor Networks" in Advances in Intelligent Systems and Computing, ISBN/ISSN: 9789811633454, springer
2. Mr. Atul Varshney presented a paper titled "Design and analysis of the meander slitted monopole antenna for wireless application" at International Conference on Devices, Circuits, and Systems (ICDCS), ISBN/ISSN: 21765884, IEEE Xplore.

Annexure-4

1. On January 26, 2022, Dr. Vipul Sharma received the Shodh Ratna Award from Gurukul Kangri, deemed to be the University, Haridwar.

Annexure-5

1. The department of ECE organized a 5-Days AICTE-sponsored workshop ON “**Smart City Technologies**” from 20th to 24th September 2021 in which around 90 participants from different parts of the country participated.



Annexure-6

1. Book Chapter Published :-

1. Mr. Amrish jangra published a book chapter on the title “ optimizing the power flow in interconnect system using hybrid flower pollination algorithm”, benthams science publishers ISBN/ISSN : 978-1-68101-901-0.
2. Dr. Vipul Sharma, Dr. Tanuj Garg published a book chapter in “New Trends in Physical Science Research Vol.1”, B P International, ISBN/ISSN :- 978-93-5547-616-6.

2. List of Patents

1. Mr. Atul Kumar Varshney, Dr, Vipul Sharma published a Patent titled “A Claw-Shaped Ultra-Wideband Fractal Microstrip Antenna” on 05-11-2021, Patent Number – 202111043290.
2. Mr. Atul Kumar Varshney, Dr, Vipul Sharma published a Patent titled “Nature Inspired Claw-Shaped Ultra Wideband Fractal Antenna Loaded with SRR for Sub-6GHz and ITU-8 Bands Applications” on 23-03-2022, Patent Number – 2021104449.
3. Mr. Atul Kumar Varshney, Dr, Vipul Sharma published a Patent titled “Miniaturized dodecagon-shaped delta loaded monopole antenna for Wi-MAX, ISM and 5g-wireless applications” on 20-04-2022, Patent Number – 2021104113.
4. Dr. Ashish Nainwal, Dr. Gorav Kumar Malik, Mr. Amrish published a Patent titled “Method and system for energy detection” on 25-08-2021, Patent Number – 2021/04351.
5. Dr. Ashish Nainwal, Dr. Gorav Kumar Malik published a Patent titled “Implementation of steganography technique using java” on 31-12-2021, Patent Number – 202111059226
6. Mr. Amrish, Mr. shiv kumar singh published a Patent titled “Ann based system for hand written digit recognition” on 31-12-2021, Patent Number – 202111060354.
7. Dr. Vipul Sharma published a Patent titled “A system for skin cancer detection using a convolution neural network module with alexnet architecture” on 21-07-2021, Patent Number – 202111032794.
8. Mr. Anuj kumar Sharma, Mr. Prateek Agarwal published a Patent titled “Method for Physical Intelligent VLSI Chip Design and Develop Technology” on 15/02/2022, Patent Number – 202021106865.
9. Dr. Atul Varshney, Vipul Sharma published a Patent titled “A low cost UWB windmill-shaped antenna using CSRR for industrial and society applications” on 11-08-2021, Patent Number – 2021103794.
10. Mr. Vivek Arya published a Patent titled “An Annular Ring Microstrip Antenna And A Method For Forming The Same” on 15-07-2022, Patent Number – 202211026653A.

11. Dr. Gorav Kr. Malik, Dr. Ashish Nainwal, Mr. Amrish published a Patent titled “Cloud native server-less warranty synchronisation, paperless and ease of management for common house appliances Vs Laser etched QR/BAR/Data Matrix” on 17-07-2021, Patent Number – 202111026981.

3. FDP/STC/Refresher course attended by the faculty

1. Dr. Ashish Nainwal attended ATAL **FDP** in IOT at Institute Of Technology Gopeshwar from 05-10-2021 to 09-10-2021.
2. Dr. Goarv malik attended ATAL **FDP** in IOT at Institute Of Technology Gopeshwar from 05-10-2021 to 09-10-2021.
3. Dr. Gorav kumar Malik attended ATAL **FDP** in Smart City Technologies at Faculty of engineering and Technology, Gurukula kangri university from 20-09-2021 to 24-09-2021.
4. Mr. Anuj Kumar Sharma attended ATAL **FDP** in Smart City Technologies at Faculty of engineering and Technology, Gurukula kangri university from 20-09-2021 to 24-09-2021.
5. Dr. Ashish Nainwal attended ATAL **FDP** in Smart City Technologies at Faculty of engineering and Technology, Gurukula kangri university from 20-09-2021 to 24-09-2021.
6. Mr. Amrish attended ATAL **FDP** in Smart City Technologies at Faculty of engineering and Technology, Gurukula kangri university from 20-09-2021 to 24-09-2021.
7. Mr. Vivek Arya attended ATAL **FDP** in Smart City Technologies at Faculty of engineering and Technology, Gurukula kangri university from 20-09-2021 to 24-09-2021.
8. Mr. Shiv Kumar attended ATAL **FDP** in Smart City Technologies at Faculty of engineering and Technology, Gurukula kangri university from 20-09-2021 to 24-09-2021.
9. Mr. Atul Kumar Varshney attended ATAL **FDP** in Smart City Technologies at Faculty of engineering and Technology, Gurukula kangri university from 20-09-2021 to 24-09-2021.
10. Dr. Ashish nainwal attended ATAL **FDP** in Machine learning applications in signal processing and wireless networks at DTU Delhi from 20-12-2021 to 24-12-2021.
11. Mr. shiv kumar singh attended **FDP** in Machine learning applications in signal processing and wireless networks at DTU Delhi from 20-12-2021 to 24-12-2021.
12. Mr. shiv kumar singh attended **FDP** in Recent Trends of Microwave and Photonics Technology in signal processing and wireless networks at Deptt. of ECE at Sant Longowal Institute of Engineering & Technology (Deemed to be University, Under Govt. of India) from 06-12-2021 to 11-12-2021.
13. Mr. Anuj Kumar Sharma attended **FDP** in Recent Trends of Microwave and Photonics Technology in signal processing and wireless networks at Deptt. of ECE at Sant Longowal Institute of Engineering & Technology (Deemed to be University, Under Govt. of India) from 06-12-2021 to 11-12-2021.
14. Mr. Vivek Arya 5G attended **FDP** in IoT and Artificial Intelligence: Research Trends and Applications at Atria Institute of Technology, Bangalore from 27-09-2021 to 01-10-2021.
15. Mr. Vivek Arya attended **FDP** in Inculcating Universal Human Values in Technical Education at All India Council for Technical Education (AICTE) from 01-02-2021 to 05-02-2021.

16. Mr. Shiv Kumar Singh attended **FDP** in Inculcating Universal Human Values in Technical Education at All India Council for Technical Education (AICTE) from 01-02-2021 to 05-02-2021.
17. Dr. Ashish Nainwal attended **FDP** in Machine Learning Applications in Signal Processing and Wireless Networks at Delhi Technological University, Delhi from 20-12-2021 to 24-10-2021.
18. Dr. Tanuj K Umar Garg attended **FDP** in Combating Cancer: Role Of MI Techniques In Prevention And Treatments at KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore from 07-06-2021 to 11-06-2021.
19. Dr. Gorav Kumar Malik attended **FDP** in Machine Learning Applications in Signal Processing and Wireless Networks at Delhi technological University Institute of Technology, Coimbatore from 20-12-2021 to 24-12-2021.
20. Mr. Anuj Kumar Sharma attended **FDP** in Recent Trends And Advances In Photonic Integrated Circuits And Its Applications at University Institute of Technology, Himachal pardesh University from 04-10-2021 to 08-10-2021.
21. Dr. Atul Kumar Varshney attended **FDP** in Recent Trends And Advances In Photonic Integrated Circuits And Its Applications at University Institute of Technology, Himachal pardesh University from 04-10-2021 to 08-10-2021.
22. Mr. Shiv Kumar Singh attended **FDP** in Recent advances in Photonics at Birla Institute of Science and Technology, Pilani from 25-11-2021 to 29-11-2021.
23. Mr. Atul Varshney attended **FDP** in 5G Antenna Design Engineering at Mailam Engineering College, from 16-12-2021 to 10-12-2021.