

# Dr. Girdhar Gopal

Date of Birth: **13 August 1992**  
Gender: **M**  
Nationality: **Indian**  
Phone: **+91 7404649752**

**Assistant Professor**  
SoE, IIIT UNA -  
177209, India  
[ggopal@iiit.ac.in](mailto:ggopal@iiit.ac.in)  
[2019rec9550@mnit.ac.in](mailto:2019rec9550@mnit.ac.in)  
[g.gopal@ieee.org](mailto:g.gopal@ieee.org)



## EDUCATION

<b>MNIT Jaipur-302017, India</b> <b>Ph.D.:</b> ECE   9.33 CGPA	<b>2020-2023</b>
<b>YMCA University, Faridabad-121006, India</b> <b>M.Tech.:</b> VLSI Design   81.45 %	<b>2015-2017</b>
<b>MDU, Rohtak-124001, India</b> <b>B.Tech.:</b> ECE   77.96 %	<b>2010-2014</b>
<b>Board of School Education Haryana, India</b> <b>Intermediate:</b> Science with Mathematics   85.60 %	<b>2010</b>
<b>Board of School Education Haryana, India</b> <b>High School:</b> General subjects   91.60 %	<b>2008</b>

## EXPERIENCES

• <b>Research Scholar</b> , Dept. of ECE, MNIT Jaipur	<b>7<sup>th</sup> Jan. 2020 – 6<sup>th</sup> Jan. 2023</b>
• <b>Assistant Professor</b> Department of Electronics and Communication Engineering, DCTM Palwal	<b>1<sup>th</sup> Aug. 2017 – 6<sup>th</sup> Jan. 2020</b>
• <b>PG Scholar</b> YMCA University, Faridabad	<b>1<sup>th</sup> Sept 2015 – 30<sup>th</sup> Aug. 2017</b>
• <b>Solar Project Engineer: Operation and Execution</b> TreeSol Energy, Delhi	<b>20<sup>th</sup> June 2014 – 30<sup>th</sup> Aug. 2015</b>

## WORKING AREAS of RESEARCH

- Nano Electronics.
- VLSI Design.
- Signal Processing.
- Device Simulation and Modelling.
- IOT Security, Machine learning and deep learning approaches.

## TECHNICAL SKILLS

▪ Sentaurus TCAD	▪ Silvaco	▪ Cadence Virtuoso	▪ MATLAB	▪ Origin
▪ LaTeX	▪ MS Office	▪ Xilinx ISE	▪ LTSPICE	▪ Vivado

## ACHIEVEMENTS

- **GATE** (Graduate Aptitude Test in Engineering) for **Electronics and Communication Engineering** in **2015, 2017 and 2023**.
- **UGC-NET** (University Grants Commission –National Eligibility Test) for **Electronic Science** in **July 2018 and Dec 2022**.

## LANGUAGE SKILLS

- **Hindi** (Mother Tongue), Proficient in reading, writing and understanding.
- **English**, Proficient in reading, writing and understanding.

## HONOURS AND AWARDS

▪ Aailed Haryana Merit Scholarship during B. Tech. program	<b>2010 – 2014</b>
▪ Aailed MHRD Scholarship during M. Tech. program	<b>1<sup>st</sup> Aug 2015 – 1<sup>st</sup> Aug 2017</b>
▪ Dean Merit Scholarship Award	<b>2017</b>
▪ Young Technological Award (YMCAUST Faridabad)	<b>2018</b>
▪ Aailed Institute Scholarship during Ph.D. program	<b>7<sup>th</sup> Jan 2020 – 6<sup>th</sup> Jan. 2023</b>
▪ Elected as Chair of IEEE Student Branch, MNIT Jaipur	<b>2022-23</b>

## RESEARCH WORKS

- **Ph.D. Thesis**, MNIT Jaipur | *Guide: Dr. Tarun Varma, MNIT Jaipur* **07<sup>th</sup> Jan 2020- 28<sup>th</sup> March 2023**

### **TITLE: Modelling and Simulation of Ferroelectric TFETs with Gate and Structural Engineering for Enhanced Electrical Performance.**

My research work focuses on investigation of the electrical performance characteristics of an ultra-thin body double gate FE layer TFET (UTB-DG-FE-TFET), a buried oxide substrate ferroelectric heterojunction TFET (Fe-HTFET) and L-Patterned Negative-Capacitance Dual Tunneling Vertical TFET (L- NC-DT-VTFET) device with corner tunneling and vertical tunnelling. Further, my research extended to temperature and trap reliability analysis for the proposed devices to investigate RF/Analog linearity figures of merits (FOMs). Moreover, A 2D model of UTB-DG-FE-TFET drain potential and current is presented by combining the Parabolic approximation with the Landau-Khalatnikov equation. It also describes how bias voltages regulate surface potential and tunnelling depletion width at source-drain junctions. Lastly, the surface potential and tunnelling current expressions differ with gate and drain biases. To perform a comprehensive analysis and simulations of the ferroelectric TFET device (Fe-TFET), the Sentaurus TCAD tool has been utilized.

- **M. Tech Thesis**, YMCA University, Faridabad | *Guide: Dr. Rashmi Chawla, YMCA University*

### **TITLE: Design and Verification of Wishbone Compatible I2C Serial Communication Protocol**

Progressive I2C is a two-wire, bi-directional serial bus that provides a simple and efficient method of data exchange between devices and is used for faster devices to communicate with slower devices and each other without data loss. It requires only two lines for communication with two or more chips and can control a network of device chips with just two general purpose I/O pins whereas, other bus protocols require more pins and signals to connect devices. This I<sup>2</sup>C interface will create the communication between master and slave devices.

- **M. Tech Minor Projects**, YMCA University, Faridabad | *Guide: Ms. Sangeeta Dhall, YMCA University*

### **TITLE: Design and Simulation of UART Serial Communication Module**

Universal Asynchronous Receiver transmitter (UART) is programmable module that is primarily used for asynchronous serial communication. Designing of UART aims at low cost, high speed, error free data transfer and reliable communication. UART is designed in VERILOG HDL and XILINX is used for synthesis and simulation.

- **B. Tech Major Projects**, GSMVNIET, Palwal (MDU Rohtak) | *Guide: Dr. Roop Singh, IIT Delhi*

### **TITLE: Temperature Monitor and Control System**

Learned a well-integrated approach to embedded systems development for Microcontroller like PIC. Used 'Mikro C PRO for PIC' to create programs for controller & 'Proteus' to execute them.

- **B. Tech Major Projects**, GSMVNIET, Palwal (MDU Rohtak) | *Guide: Dr. Roop Singh, IIT Delhi*

### **TITLE: Temperature Sensor and Auto Warning System**

Used 'Keil' to create programs for controller & 'Proteus' to execute them. Successfully developed "Temperature Sensor and Auto Warning System" with help of ARM microcontroller.

- **B. Tech Minor Projects**, GSMVNIET, Palwal (MDU Rohtak) | *Guide: Dr. Harendra Singh, GL Bajaj Noida*

### **TITLE: Temperature Sensor and Auto Warning System**

The  $\pm 12$  V supply required by the OP amps is provided by the 12V supply circuit arrangement. The regulated DC output voltage is obtained by using regulator ICs.

Types of Research Papers	Nos.
International SCI / SCI-Expanded Journals ( <b>Indexed in Thomson Reuters</b> )	<b>5</b>
National Journals	<b>1*</b>
Conference Proceedings	<b>2</b>
International Conferences	<b>01</b>
National Conferences	<b>01</b>
<b>Total Research Papers (* - Under Review)</b>	<b>9+1*</b>

#### International SCI Journals – 5

- Gopal Girdhar and Tarun Varma, "Impacts of Temperature on the reliability of UTB-DG-FE-TFETs and their RF/Analog and linearity parameters dependencies", Journal of Electronic Materials (SCI)
- Gopal Girdhar and Tarun Varma, "Investigation of Temperature for The Stacked Ferroelectric Heterojunction TFET (Fe- HTFET) On Box Substrate", Micro and Nano Structures. (SCI)
- Gopal, Girdhar, Harshit Agrawal, Heerak Garg, and Tarun Varma. "Simulation-Based Analysis of an L-Patterned Negative-Capacitance Dual Tunnel VTFET." International Journal of Electronics just- DOI: 10.1080/00207217.2022.2164069 (2023). (SCI)
- Gopal, Girdhar, Heerak Garg, Harshit Agrawal, and Tarun Varma. "Stacked ferroelectric heterojunction tunnel field effect transistor on a buried oxide substrate for enhanced electrical performance." Semiconductor Science and Technology 37, no. 10 (2022): 105006. (SCI)
- Gopal, Girdhar, and Tarun Varma. "Simulation-based analysis of ultra-thin-body double gate ferroelectric TFET for an enhanced electric performance." Silicon 14.12 (2022): 6553- 6563. (SCI)

#### National Journal –01

- Gopal, Girdhar, Meghna Kumawat and Tarun Varma. " Recent Advancement in TFET based biosensor addressing technique and outcome: A Review." Indian Journal of Science and Technology (**Under review**)

#### Conference Proceedings -02

- Gupta, Dheeraj, Girdhar Gopal, Arun Kishor Johar, Sudhir Kumar Mishra, Ashutosh Tripathi, and Tarun Varma. "A low voltage low power OTA and three stage class-AB CMOSOTA using bulk driven technique." In AIP Conference Proceedings, vol. 2782, no. 1. AIP Publishing, 2023.
- Kumari, Anjali, Girdhar Gopal, Arun Kishor Johar, Sudhir Kumar Mishra, Ashutosh Tripathi, and Tarun Varma. "Evaluation of Bi-CAM and TCAM cells with MTJ for low power and high-speed using 180 NM technology." In AIP Conference Proceedings, vol. 2782, no. 1. AIP Publishing, 2023.

#### International Conferences –01

- Girdhar Gopal, Ms. Rashmi Chawla. "Design and Simulation of UART Module with BIST Technique" International Journal of Scientific and Engineering Research 2017.

#### National Conferences–01

- Girdhar Gopal, Ms. Sangeeta Dhall. "Design and Simulation of UART serial Communication Module" International Conference on Sustainable Development through Research in Engineering and Management 2016.

#### SERVED AS REVIEWER

- Peer reviewed journal: Silicon, International Journal of Electronics, Semiconductor Science and Technology, Journal of Physics D: Applied Physics
- Peer reviewed Conferences: International Conference on Intelligent Computing, Communication and Information Security (ICICIS-2022).

#### OTHER PUBLICATIONS

##### Patents – 02

- An Ensemble Deep Learning approach for Genes Expression Classification Application No. 2021105093 (AU)- **Published**
- A system for server-driven data synchronization in IOT connectivity and method thereof Application No. 202141034610 (IN)- **Published**

#### PROJECTS GUIDED

##### UG Guided Projects

- Bluetooth Controlled Home Appliances- Allu Manoj Kumar (E14001)
- Metal Detecting Robot Luv Kumar Singh (E14007)
- Password based Circuit BreakerRahul Gola(E14009)
- Auto Intensity Control of Street Lights Rahul Sharma(E14010)
- LED Christmas Lights Circuit- Akash Kumar(E15003)
- Design and Simulation of UART Serial Communication Module- Bhagdatta Kumar Nath (E15007)
- Line Following Robotic Circuit using Microcontroller-Pallabi Brahma(E15015)
- Contactless Digital Tachometer using 8051 Microcontroller- Prashant Sharma(E15017)
- Automatic Railway Gate Controller with High-Speed Alerting System- Md. Sajid Ahmad(E15019)
- Blow Moulding Machine- Shubham Dixit(E15021)
- Water Level Controller using Microcontroller- Aditi Gupta (E16001)
- Speed Control of DC Motor using Pulse Width Modulation- Ajit Yadav (E16002)
- Car Battery Charger- Akash Srivastava (E16003)
- Biometric Attendance System- Manisha Nirmal (E16008)

- Password Based Door Lock System- Nibedita Das (E16010)
- Water Level Alarm Using 555 Timer- Prosenjit(E16012)
- Automatic Washroom Light Switch- Subhankar Biswas (E16016)
- Automatic Door Bell with Object Detection- Sneha Basumatry (E16015)
- Car Parking Guard Circuit Using Infrared Sensor- Amit Terang (LE15004)
- Intelligent Unambiguous Night Lamp Switcher- Ansing Teron (LE15005)
- Intelligent Unambiguous Night Lamp Switcher- Adarsh Aanand(E17001)
- Auto Turnoff Soldering Iron Circuit- Deepak (E17002)
- Automatic Plant Irrigation System- Dimbeswar Kalita(E17003)
- Mosquito Repellent Circuit- Manpreet Sandhu(E17007)
- Simple Fire Alarm Circuits- Mohit(E17008)
- Clap Switch Circuit for Devices- Ravi Kumar(E17011)
- Luggage Security Alarm- Sujeet(E17014)

### PG Guided Projects

- Design of an Intelligent Routing Protocol that avoid selfish mode in MANET- Shristi Singh (University Roll No.- 2194424) during 2017- 2018.
- IOT based smart basket using RFID Module – Anil Kumar Yadav (University Roll No.- 2194426) during 2017- 2018.
- Design & Performance analysis of Low Voltage folded Cascode Operational Amplifier – Muhammed Rais (University Roll No.- 17034505007) during 2018- 2019.
- Low Error ICI Mitigation for MIMO-OFDM In Time-varying Channel – Gaurav Krishan Kaushik (University Roll No.- 18034505003)) during 2019-2020.
- Double Gate Tunnel Field Effect Transistor as a Biosensor: A Simulation-based Study– Ingle Aakash Yuvraj (University Roll No.- 18034505004) during 2019-2020.

### KEY ACTIVITIES UNDERTAKEN

#### Conference Presented/ attended

- Design and Simulation of UART Serial Communication Module in international conference on “Sustainable Development through Research in Engineering and Management (SDREM 2016)” on 26-27 Dec. 2016.
- Design and Simulation of UART Module with BIST in “National Conference on Innovations in Electronics and Telecommunication design (NCIETD-2017) on 24<sup>TH</sup> & 25<sup>TH</sup> Mar, 2017.
- A low voltage low power OTA and three stage class-AB CMOS OTA using bulk driven technique in in the "International Conference on Intelligent Systems and Computing (ICISC-2022)" organized by the Department of Computer Engineering, Poornima Institute of Engineering and Technology, Jaipur on 6<sup>TH</sup> & 7<sup>TH</sup> May, 2022.
- Evaluation of BiCAM and TCAM cells with MTJ for Low Power and High-Speed using 180 nm Technology technique in in the "International Conference on Intelligent Systems and Computing (ICISC-2022)" organized by the Department of Computer Engineering, Poornima Institute of Engineering and Technology, Jaipur on 6<sup>TH</sup> & 7<sup>TH</sup> May, 2022.

#### Organizational / Managerial/Other Academic Experiences

▪ Time Table Coordinator	<b>Dec. 2017- Dec. 2019</b>
▪ Anti-Ragging Squad, Departmental	<b>Dec. 2017- Dec. 2019</b>
▪ Admission Counselling.	<b>2017, 2018, 2019</b>
▪ University Visit for NAAC Documentation	<b>2018, 2019</b>
▪ B. Tech ECE Subject coordinator	<b>2017, 2018, 2019</b>
▪ Student Performance coordinator.	<b>2018, 2019</b>
▪ Faculty in charge during intercollege tournaments	<b>2017, 2018, 2019</b>
▪ Academically Weak Students Mentoring.	<b>2017, 2018, 2019</b>
▪ Judge during Tech Fest	<b>2017, 2018, 2019</b>
▪ NBA Documentation Work	<b>2021</b>
▪ Student, DPGC Member	<b>1<sup>th</sup> Oct 2021 – 6<sup>th</sup> Jan 2023</b>
▪ Elected as Chair of Student Branch MNIT Jaipur	<b>2022-2023</b>
▪ Elected as Secretary of IEEE Sensor Council, MNIT Jaipur	<b>2022-2023</b>
▪ Elected as Webmaster of IEEE EDS Chapter, MNIT Jaipur	<b>2022-2023</b>
▪ Elected as Webmaster of Communication Society Chapter, MNIT Jaipur	<b>2022-2023</b>

#### Faculty Development Program (FDP)/Short Term Course (STC)/Workshop/Seminar/Training Attended

▪ Online Internship Program on “Design and Verification using Verilog” Organized by Entuple Technologies in association with IEEE Bangalore Section	<b>27<sup>th</sup> May - 04<sup>th</sup> July 2020</b>
▪ International webinar on “Advancement in extending library and information services for academic excellence” Organized by Poornima college of engineering Jaipur	<b>1<sup>st</sup> June 2020</b>
▪ Online Internship Program on “Synthesis and Timing Analysis” Organized by Entuple Technologies in association with IEEE Bangalore Section	<b>28<sup>th</sup> May - 07<sup>th</sup> July. 2020</b>
▪ Online Internship Program on “System Verilog System Based Verification” Organized by Entuple Technologies in association with IEEE Bangalore Section	<b>3<sup>rd</sup> June - 11<sup>th</sup> July</b>

	<b>2020</b>
▪ Workshop on “Emerging CMOS Technologies and Beyond: Trends and Challenges” at MNIT Jaipur	<b>20<sup>th</sup> – 24<sup>th</sup> Aug. 2020</b>
▪ Workshop on “Recent trends in VLSI Devices/Circuits and Applications” at MNIT Jaipur	<b>24<sup>th</sup> Aug-4<sup>th</sup> Sept. 2020</b>
▪ Seminar on “Non-Classical CMOS Devices- Moving Towards Tunnel FET” by TEQIP-III & IEEE Student Branch of MNIT Jaipur in association with IEEE Rajasthan Subsection	<b>12<sup>th</sup> Sept. 2020</b>
▪ Seminar on "Understanding Qualitative Research: Is it scientific in nature?" by TEQIP-III & IEEE Student Branch of MNIT Jaipur in association with IEEE Rajasthan Subsection	<b>26<sup>th</sup> Sept. 2020</b>
▪ Seminar on “Induced Work Function Variation on Electrical Parameters in FinFET” by TEQIP-III & IEEE Student Branch of MNIT Jaipur in association with IEEE Rajasthan Subsection.	<b>24<sup>th</sup> – 28<sup>th</sup> Sept. 2020</b>
▪ Seminar on "How to develop a research culture in an academic institute" by TEQIP-III & IEEE Student Branch of MNIT Jaipur in association with IEEE Rajasthan Subsection	<b>3<sup>rd</sup> – 7<sup>th</sup> Oct. 2020</b>
▪ Online Training Program on “Python for Engineers” Organized by Department of Electronics and Communication Engineering and Computer Science and Engineering, Malaviya National Institute of Technology Jaipur	<b>20<sup>th</sup> - 24<sup>th</sup> Dec. 2020</b>
▪ Online Faculty Development Programme on “5G Design: Journey from Devices to Circuits” jointly organized by MNIT Jaipur, NIT Patna, IIITDM Jabalpur & IIT Guwahati and supported by Ministry of Electronics and Information Technology (MeitY)	<b>1<sup>st</sup> - 12<sup>th</sup> March 2021</b>
▪ Online FDP – cum – STTP on “Simulation, Modelling and Application of Advanced Semiconductor Devices” Organized by Department of Electronics Engineering, Harcourt Butler Technical University, Kanpur, Uttar Pradesh, India - 208002.	<b>05<sup>th</sup> - 09<sup>th</sup> July 2021</b>
▪ Online Faculty Development Programme on “Advanced Optimization Techniques and hands-on with MATLAB/SCILAB” jointly organized by MNIT Jaipur, NIT Patna, IIITDM Jabalpur & IIT Guwahati and supported by Ministry of Electronics and Information Technology (MeitY)	<b>6<sup>th</sup> - 17<sup>th</sup> Sept. 2021</b>
▪ Online Training Session on “EndNote: Reference management tool” Organized by Central Library, Malaviya National Institute of Technology Jaipur	<b>8<sup>th</sup> Dec. 2021</b>
▪ Online Seminar on “Academic Integrity for Research Scholars” Organized by Amity University Gwalior	<b>26<sup>th</sup> Feb. 2022</b>
▪ The webinar on the topic "Challenges and Opportunities for Frequency Control in Net-Zero Systems" organized by IEEE-PES Student Branch Chapter MNIT Jaipur	<b>1<sup>st</sup> May 2022</b>
▪ Workshop on “CeNSE DBT Nano biotechnology Alliance (C-DNA) Familiarization” Organized by Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science, Bangalore	<b>23<sup>rd</sup> May - 25<sup>rd</sup> May 2022</b>
▪ A webinar on “Smart Grids, Microgrids and Real-time simulation applications” Organized by IEEE SMC Student, Malaviya National Institute of Technology Jaipur	<b>25<sup>th</sup> May 2022</b>
▪ A webinar on “Energy Efficiency in Smart Buildings through IoT Sensor Integration” conducted jointly by IEEE MNIT SMC Student Chapter and IEEE RFID Student Chapter, Malaviya National Institute of Technology Jaipur	<b>27<sup>th</sup> May 2022</b>
▪ Expert lecture on “RFIC: Design, Challenges and Opportunities towards Wireless Applications” Organized by IEEE APS SBC MNIT in association with IEEE SB MNIT, IEEE RFID SBC MNIT & IEEE Delhi APS Chapter- Jaipur	<b>31<sup>st</sup> May 2022</b>
▪ One Day expert lecture on “Transition Metal Dichalcogenide/Group-IV Semiconductor Heterojunction Photodetector for Visible to Infrared Wavelength” by IEEE Sensor Council, student chapter MNIT Jaipur	<b>7<sup>th</sup> Sept. 2022</b>
▪ One Professional Development Hour on “Steep transistors for low voltage computing” by IEEE EDS Delhi Chapter	<b>26<sup>th</sup> Sept. 2022</b>
▪ Online Distinguished Lecture on “FOSS TCAD/EDA Tools SPICE and Verilog-A Modeling Flow” conducted by IEEE EDS Student Branch Chapter MNIT, Jaipur	<b>26<sup>th</sup> Sept. 2022</b>
▪ One Professional Development Hour on “Trends and Challenges in Micro- and Nanoelectronics for the Next Decade” by IEEE EDS Delhi Chapter	<b>30<sup>th</sup> Sept. 2022</b>
▪ One Professional Development Hour on “Device Engineering for Nanoelectronics and Nano systems in the Energy and Variability Efficient (E.V.E.) Era” by IEEE EDS Delhi Chapter	<b>05<sup>th</sup> Oct. 2022</b>
▪ Online Distinguished Lecture on “Compacting Models: The Art of Compact Modeling” conducted by IEEE EDS Student Branch Chapter MNIT, Jaipur	<b>6<sup>th</sup> Oct. 2022</b>
▪ One Professional Development Hour on “3D Nanocarbon Interconnects” by IEEE EDS Delhi Chapter.	<b>11<sup>th</sup> Oct. 2022</b>
▪ One Professional Development Hour on “Complementing silicon technologies with graphene for More-than-Moore applications” by IEEE EDS Delhi Chapter.	<b>19<sup>th</sup> Oct. 2022</b>
▪ Online Training Course on “Learning Silvaco for Semiconductor Simulation” conducted by Udemy	<b>23<sup>rd</sup> Feb 2023</b>
▪ One Professional Development Hour on “Anomalous mechanical impact on reliability of physically conformal CMOS electronics” by IEEE EDS Delhi Chapter	<b>08<sup>th</sup> April 2023</b>
▪ Technical talk on “Bandgap Engineering and Device Applications of Dilute Nitrides Chalcides” by IEEE EDS Delhi Chapter	<b>19<sup>th</sup> April 2023</b>

<b>Faculty Development Program (FDP)/Short Term Course (STC)/Workshop/Seminar/Webinar Organized</b>	
▪ Coordinator, one day webinar on “Automatic identification of Rolling Stock using RFID technology” at DCTM Palwal	<b>12<sup>th</sup> Oct. 2017</b>
▪ Organizing Member, one day workshop on IOT was conducted by Morling Global Pvt. Ltd	<b>23<sup>rd</sup> Feb, 2018</b>
▪ Organizing Member, A seminar on PLC & SCADA was organized by Department of Electronic and Communication Engineering. The seminar was organized in collaboration with the guest faculty invited from the SOFCON India Pvt. Ltd.	<b>28<sup>th</sup> Sept. 2018</b>
▪ Organizing Member, A one-day workshop on Practical Application of ARM and AVR microcontroller was organized by CETPA Infotech Pvt. Ltd.	<b>12<sup>th</sup> Oct 2018</b>
▪ Organizing Member, A one-day workshop on Web design and development was organized by Tech Explica, nucleus computers Ltd. students were given practical training.	<b>15<sup>th</sup> March 2019</b>
▪ Organizing Member, expert webinar on the topic of “Career Counselling for Engineers” by IEEE Student Branch of MNIT Jaipur in association with Mr. Ankit Goyal, Gate Director in Unacademy	<b>29<sup>th</sup> April. 2022</b>
▪ Organizing Member, a webinar on "Challenges and Opportunities for Frequency Control in Net-Zero Systems" by IEEE Student Branch of MNIT Jaipur in association with IEEE Power & Energy Society Student Branch Chapter MNIT Jaipur	<b>01<sup>st</sup> May. 2022</b>
▪ Organizing Member, a webinar on " Modeling of Bidding Strategies in the Liberalized Electricity Market" by IEEE Student Branch of MNIT Jaipur	<b>24<sup>th</sup> May. 2022</b>
▪ Organizing Member, a webinar on "Smart Grids, Microgrids and Real-time simulation applications" by IEEE Student Branch of MNIT Jaipur in association with IEEE Systems, Man and Cybernetics Society Student Branch Chapter MNIT Jaipur	<b>25<sup>th</sup> May. 2022</b>
▪ Organizing Member, a webinar on "Demystifying the role of photonics by using FDTD tool" by IEEE Student Branch of MNIT Jaipur	<b>28<sup>th</sup> May. 2022</b>
▪ Organizing Member, Invited talk on "RFIC: Design, Challenges and Opportunities towards Wireless Applications" by IEEE APS SBC in collaboration with IEEE RFID SBC, IEEE Delhi APS Chapter-Jaipur and IEEE student branch MNIT Jaipur	<b>31<sup>st</sup> May. 2022</b>
▪ Organizing Member, Invited talk on "Beyond CMOS Devices and Current Research Trends" by the IEEE student branch MNIT Jaipur in collaboration with IEEE APS SBC	<b>30<sup>th</sup> July. 2022</b>
▪ Organizing Member, Invited talk on " Broadband MIMO Antenna " by the IEEE student branch MNIT Jaipur in collaboration with IEEE APS SBC	<b>06<sup>th</sup> Aug 2022</b>
▪ Organizing Member, invited talk on "Technological Advancement of MEMS based Sensors for VOCs Detection " by the IEEE Sensor Council, student chapter MNIT Jaipur in collaboration with IEEE student branch MNIT Jaipur	<b>13<sup>th</sup> Aug 2022</b>
▪ Organizing Member, invited talk on " Time-Modulated Antenna Array Pattern Synthesis Using Evolutionary Approach" by IEEE Antenna and Propagation Society (APS) Student Branch Chapter MNIT Jaipur in association with IEEE MNIT Student Branch, IEEE Delhi APS Chapter-Jaipur and IEEE RFID SBC MNIT Jaipur	<b>27<sup>th</sup> Aug 2022</b>
▪ Organizing Member, invited talk on " Harnessing of FETs for Chemical/Biochemical Applications" by the IEEE Sensor Council MNIT Jaipur in association with IEEE MNIT Student Branch	<b>2<sup>nd</sup> Sept. 2022</b>
▪ Organizing Member, invited talk on " Microstrip antenna design and optimization using full wave simulator" by the IEEE Antenna and Propagation Society (APS) Student Branch Chapter MNIT Jaipur in association with IEEE MNIT Student Branch, IEEE Delhi APS Chapter-Jaipur and IEEE RFID SBC MNIT Jaipur	<b>3<sup>rd</sup> Sept. 2022</b>
▪ Organizing Member, invited talk on " Microstrip antenna design and optimization using full wave simulator" by the IEEE Antenna and Propagation Society (APS) Student Branch Chapter MNIT Jaipur in association with IEEE MNIT Student Branch, IEEE Delhi APS Chapter-Jaipur and IEEE RFID SBC MNIT Jaipur	<b>7<sup>th</sup> Sept. 2022</b>
▪ Organizing Member, invited talk on "Transition Metal Dichalcogenide/Group-IV Semiconductor Heterojunction Photodetector for Visible to Infrared Wavelengths" by the IEEE Sensor Council MNIT Jaipur, in association with IEEE MNIT Student Branch	<b>7<sup>th</sup> Sept. 2022</b>
▪ Organizing Member, invited talk on "Design of Substrate Integrated Waveguide based passive devices: Antenna, Filter, Power Divider and Coupler" by IEEE Antenna and Propagation Society (APS) Student Branch Chapter MNIT Jaipur in association with IEEE MNIT Student Branch, IEEE Delhi APS Chapter-Jaipur and IEEE RFID SBC MNIT Jaipur	<b>11<sup>th</sup> Sept. 2022</b>
▪ Organizing Member, invited talk on "Hands-on Workshop on Device Simulation using Silvaco TCAD” by the IEEE Student Branch MNIT Jaipur	<b>15<sup>th</sup> Sept. 2022</b>
▪ Organizing Member, Distinguished Lecturer Program on "FOSS TCAD/EDA Tools SPICE and Verilog-A Modeling Flow" by IEEE Student Branch MNIT Jaipur in association with IEEE EDS Student Branch Chapter MNIT Jaipur	<b>22<sup>th</sup> Sept. 2022</b>
▪ Organizing Member, invited talk on "Emerging Trends of Engineered Semiconductor Devices: A Modelling Approach” by the IEEE Student Branch MNIT Jaipur	<b>26<sup>th</sup> Sept. 2022</b>
▪ Organizing Member, expert talk on “Advanced Options for Harnessing Solar Energy” by the IEEE MNIT WIE Student chapter, in association with IEEE MNIT Student Branch	<b>27<sup>th</sup> Sept. 2022</b>
▪ Organizing Member, invited talk on "Next generation device design using Sentaurus TCAD” by the IEEE Student Branch MNIT Jaipur	<b>29<sup>th</sup> Sept. 2022</b>
▪ Organizing Member, an expert talk on “Compacting Models: The Art of Compact Modelling” by the IEEE SB MNIT Jaipur in association with IEEE EDS Student Branch Chapter MNIT Jaipur	<b>6<sup>th</sup> Oct. 2022</b>

<ul style="list-style-type: none"> <li>Organizing Member, invited talk on " Human machine interface for neural rehabilitation and prosthesis" the IEEE Signal processing Society Student Branch chapter MNIT Jaipur in association with IEEE Student Branch MNIT Jaipur</li> </ul>	<b>07<sup>th</sup> Oct. 2022</b>
<ul style="list-style-type: none"> <li>Organizing Member, expert talk on " FPGA based Phase detection for fusion plasma diagnosis in Millimeter wave interferometer" the IEEE Signal processing Society Student Branch chapter MNIT Jaipur in association with IEEE Student Branch MNIT Jaipur</li> </ul>	<b>12<sup>th</sup> Oct. 2022</b>
<ul style="list-style-type: none"> <li>Organizing Member, invited talk on " A poster competition on multidisciplinary topics related to emerging technologies" the IEEE PES and APS Student Branch chapters, MNIT Jaipur in association with IEEE MNIT Student Branch</li> </ul>	<b>14<sup>th</sup> Oct. 2022</b>
<ul style="list-style-type: none"> <li>Organizing Member, expert talk on " The Future of (Nano) Electronics and Possible Roles India Can Play" the IEEE Sensor Council MNIT Jaipur in collaboration with the IEEE Nanotechnology Student branch MNIT Jaipur &amp; IEEE MNIT Student Branch</li> </ul>	<b>14<sup>th</sup> Oct. 2022</b>

### Invitation / Academic Visit

<ul style="list-style-type: none"> <li>External Practical Examiner for MRIIRS practical examination of 7th semester, Electronics &amp; Communication department at FET, MRIIRS Faridabad</li> </ul>	<b>30<sup>th</sup> Nov. 2018</b>
<ul style="list-style-type: none"> <li>External Practical Examiner for practical examination of 5th and 7th semester, Electronics &amp; Communication department at NGF college Palwal</li> </ul>	<b>14<sup>th</sup> Dec. 2019</b>
<ul style="list-style-type: none"> <li>External Practical Examiner for practical examination of 3th and 7th semester, Electronics &amp; Communication department at SRCCEM college Palwal</li> </ul>	<b>16<sup>th</sup> Dec. 2019</b>
<ul style="list-style-type: none"> <li>External Practical Examiner for M. Tech practical examination of 1st and 3rd semester, Electronics &amp; Communication department at NGF college Palwal</li> </ul>	<b>16<sup>th</sup> Dec. 2019</b>
<ul style="list-style-type: none"> <li>Answer sheet evaluation for UG &amp; PG subjects at JCBOSE YMCAUST Faridabad</li> </ul>	<b>1<sup>st</sup> Jan 2020- 06<sup>th</sup> Jan 2020</b>
<ul style="list-style-type: none"> <li>An invited talk on "Transistor Devices and Circuits with Emerging Trends" as Part of The Commemoration of 75th Anniversary of Transistor Invention on IEEE Day at MNIT Jaipur</li> </ul>	<b>4<sup>th</sup> Oct. 2022 (IEEE Day)</b>

## COURSE TAUGHT

### At YMCA University, Faridabad, India

S. No.	Name of Lab	UG/PG Level	No. of times Lab Conducted
1.	Digital Communication	PG	1
2.	Basics of Electronic Engineering	UG	2
3.	Analog Circuits	UG	2
4.	Digital Electronics	UG	2

### At DCTM, Palwal, India

S. No.	Name of Subject/Lab	UG/PG Level	No. of times Course taught	No. of times Lab Conducted
1.	Digital Electronics	UG	3	3
2.	Microprocessor (MPI)	UG	2	2
3.	Microcontroller and Embedded Systems	UG/PG	2	1
4.	Analog Electronics	UG	2	2
5.	Electronics Devices and Circuits	UG	1	1
6.	Wireless Communication	UG	1	-
7.	Digital Signal Processing	UG/PG	2	-
8.	Basics of Electronics Engineering	UG	2	2
9.	Analog and Digital Communication	UG	2	1
10.	Electromagnetic field theory	UG	1	-
11.	Antenna and Radar	UG	1	1
12.	Computer Network	UG	1	-
13.	Network Analysis and Synthesis	UG	1	1
14.	Control system	UG	1	1
15.	Signal system	UG	1	-



## At MNIT, Jaipur, India

S. No.	Name of Lab	UG/PG Level	No. of times Lab Conducted
1.	Analog Communication	UG	4
2.	PMSS Lab	UG	4
3.	Electronic Engineering	UG	2
4.	Microprocessor	UG	2
5.	System Design Lab	PG	4
6.	Semiconductor and IC Simulation Lab	PG	2

## PROFESSIONAL MEMBERSHIP

- Graduate Student Member IEEE (Member ID: 96652184)
- Member of IEEE EDS, RFID Council, Sensor Council and Communication Society

## REFERENCES

<b>Dr. Tarun Varma</b> Associate Professor, Department of Electronics Engineering, MNIT Jaipur- 302017, India. Email: <a href="mailto:tarun@mnit.ac.in">tarun@mnit.ac.in</a>	<b>Prof. D. Boolchandani</b> Professor, Department of Electronics Engineering, MNIT Jaipur-302017, India. Email: <a href="mailto:dboolchandani.ece@mnit.ac.in">dboolchandani.ece@mnit.ac.in</a>	<b>Dr. Rashmi Chawla</b> Assistant Professor Department of Electronics Engineering, YMCA University Faridabad -121006, India. Email: <a href="mailto:rashmichawlaymca@gmail.com">rashmichawlaymca@gmail.com</a>	<b>Prof. Munish Vashishath</b> Professor, Department of Electronics Engineering, YMCA University Faridabad -121006, India. Email: <a href="mailto:munish.vashishath@gmail.com">munish.vashishath@gmail.com</a>
--	--	---	--