Centre/School/Special Centre: - School of Studies of Engineering & Technology
Department of Electronics & Communication Engg.
Ph: - (+91) 9896004182
Email: - sudakarnith@gmail.com, sudakar.chauhan@ggu.ac.in
Personal Webpage Link: - https://www.ggu.ac.in/Admin/Files/Resume/Dr%20S.%20S.%20Chauhan.pdf

Dr. Sudakar Singh Chauhan

Associate Professor

Qualifications:

- ✓ Ph.D. (MIMO Communication) ----- Birla Institute of Technology (BIT), Mesra, Ranchi.
- ✓ M.Tech. (VLSI Design Automation & Techniques) ----- National Institute of Technology (NIT) Hamirpur, Himanchal Pradesh.

Area of Interest/Specialization:

- ➢ Low Power VLSI Devices
- ➢ Wireless Communication

Experience: Total 15+

S. No.	Organization	Post	Experience
1	National Institute of Technology (NIT) Kurukshetra	Assistant Professor	9 Years 5 Months
2	Graphic Era University, Dehradun	Assistant Professor	5 Years 9 Months

Awards and Honors:

1. Full time MHRD sponsored research scholar at NIT Hamirpur.
2. Best Paper Award in ICACCT-2019.
3. Reviewer of the following SCI and Scopus Indexed Journals:

- IEEE Transaction on Wireless communication
- IEEE Transaction on Vehicular Technology
- IEEE Transactions on Cognitive Communications and Networking
- IEEE Communication Letter
- IET Communication
- IET Electronics Letter
- WILEY International Journal of Communication Systems.
- WILEY Transactions on Emerging Telecommunications Technologies
- SPRINGER Telecommunication Systems
- SPRINGER Journal of Computational Electronics
- SPRINGER Wireless Personal Communication
- SPRINGER Frontiers of Information Technology & Electronic Engineering
- SPRINGER Silicon
- SPRINGER Plus
- ELSEVIER Adhoc Network
- ELSEVIER AEU International Journal of Electronics & Communication
- ELSEVIER Physical Communication
- ELSEVIER Heliyon
- CAMBRIDGE CORE Journal of Material Research
- Journal of Nanoelectronics and Optoelectronics
- Turkish Journal of Computer and Electrical
- KSII Transactions on Internet and Information Systems
- Journal of Information Processing Systems (JIPS)
- Inder science International Journal of Wireless and Mobile Computing (IJWMC).
- ICTACT Journal on Communication Technology.

4. Reviewer of the following Conferences:

- IEEE 5th International Conference on Advances in Computer Technology, Information Science and Communications (CTISC 2023) Suzhou, China from April 21-23, 2023.
- IEEE 4th International Conference on Advances in Computer Technology, Information Science and Communications (CTISC 2022) Suzhou, China from April 22-24, 2022.
- International Conference on Electrical, Electronics and Computing Technology (CEECT 2021) held on Xiamen, China from March 26-28, 2021.
- Springer Workshop on Machine learning, Deep learning and Computational Intelligence for Wireless Communication (MDCWC2020) held on National Institute of Technology Tiruchirappalli, India, Oct. 22-24, 2020.
- International Conference on Advances in Computing, Communication & Materials (ICACCM)-2020 jointly organized by Uttarakhand Technical University, Dehradun & Tula's Institute, Dehradun, Aug. 21-22, 2020.

- International Conference on Manufacturing, Advance Computing, Renewable Energy and Communication (MARC-2018) organized at HMR Institute of Technology and Management (HMRITM), July 19-20, 2018.
- 6th International Conference on Smart Computing & Communications (ICSCC 2017), organized by NIT Kurukshetra Dec. 7-8, 2017
- National Conference on "Recent Advances in Mechanical Engineering (NCRAME-2017)" organized by NIT Kurukshetra June 2-3 2017.
- IEEE International conference on Engineering Trends in Communication Technologys (ICCCE-2017) organized by NIT Jaipur, Rajasthan, India July 18-19, 2016
- IEEE International conference on Engineering Trends in Communication Technologys (ICETCT-2016) organized by GEU, Dehradun, Uttarakhand Nov. 18-19, 2016
- 2nd IEEE International Conf. on Advances in Computing and Communication Engg. (ICACCE'15), May 1-2, 2015, Dehradun, Uttarakhand.
- IEEE International Conference on Computing, Communication and Security (ICCCS) Dec. 4-5, 2015 Le Meridien Pointe aux Piments, Pamplemousses, Mauritius.

Research Projects:

Completed:03

(1) Research proposal entitled **"***PLS Performance Analysis of MUS-MIMO Systems in the Presence of Imperfect Channel State Information***"** has been approved under **"TEQIP Collaborative Research Scheme, NPIU** dated June 18, 2019**.** Amount Rs. **1110000/-.**

(2) Research proposal entitled "*Design of rain map using signal attenuation over Dehradun region of Uttarakhand*" has been approved under **TEQIP-III** dated Sept. 30, 2019. Amount Rs. **1, 50,000/-.**

(3) Research proposal entitled "*Physical Layer Security Performance Analysis of Cognitive Radio Systems in the Presence of Imperfect Channel State Information (CSI)*" has been approved under **"Uttarakhand State Council for Science & Technology (UCOST)** dated Feb. 27, 2021**.** Amount Rs. **3,75,000/-.**

Best Peer Reviewed Publication (up-to 10):

(1) Rajiv Kumar & **Sudakar Singh Chauhan,** "Physical Layer Security for Multi-user Multi eavesdropper multi-input multi-output (MIMO) system in the Presence of Imperfect feedback," *International Journal of Communication Systems*, vol. 23, issue 17, pp. 1-8, 2020. **IF 2.349**

(2) Seema and **Sudakar Singh Chauhan**, "Linearity performance analysis of double gate (DG) VTFET using HDB for RF applications," *Silicon*, vol. 13, pp. 1121-1125, 2020. **IF 2.941.**

(3) **Sudakar Singh Chauhan** & Sanjay Kumar, "Performance analysis of maximal ratio transmission with receiver antenna selection over correlated Nakagami-m fading channels," *Wireless Network*, vol.26, pp. 751-758, 2019. **IF 2.701**

(4) N. Paras & **Sudakar Singh Chauhan,** "A novel vertical tunneling based Ge-source TFET with enhanced DC and RF characteristics for prospect low power applications," *Microelectronic Engineering*, vol. 217, 111103 (pp.1-9), 2019. **IF 2.662**

(5) N. Paras & **S. S. Chauhan,** "Temperature sensitivity analysis of vertical tunneling based dual metal gate TFET on analog/RF FOMs," *Applied Physics A*, vol. 125, pp. 316 (1-8), 2019. **IF 2.983**

(6) Abhishek Ananda, **Sudakar Singh Chauhan** & Amit Prakash, "Comment on An Analytical Model for Tunnel Barrier Modulation in Triple Metal Double Gate TFET," *IEEE Transaction on Electron Devices*, vol. 66, no. 2, pp.1123-1124, 2019. **IF 3.221**

(7) Seema and **Sudakar Singh Chauhan**, "Investigation of RF and Linearity Performance of electrode work-function engineered HDB Vertical TFET," *IET Micro & Nano Letters*, vol. 14, no.1, pp. 17-21, 2019. **IF: 0.975.**

(8) Rajiv Kumar and **Sudakar Singh Chauhan**, "Secrecy analysis of Alamouti scheme using feedback-rate efficient transmit antenna selection with robust error performance in the presence of feedback errors," *International Journal Electronics & Communication (AEU)*, vol. 96, pp. 40-47, 2018**. IF: 3.169**

(9) Rajiv Kumar and **Sudakar Singh Chauhan**, "Secrecy Analysis of MRT/RAS System under Nakagami-m Fading Channels in the Presence of Imperfect Channel State Information," *International Journal Electronics & Communication (AEU)*, vol. 85, pp. 68-73, 2018. **IF: 3.169**

(10) **Sudakar Singh Chauhan** and Sanjay Kumar, "Channel Capacity of TAS/MRC System with Adaptive Transmission and Channel Estimation Errors," *Telecommunication Systems*, vol. 63 no. 3, pp. 347-355, 2015. **IF: 2.336**

Recent Books/Book Chapters/Monographs etc.:

Books:

(1) Sudakar Singh Chauhan, "GATE Electronics & Communication Engineering (Edition: 1st-2012, 2nd -2013, 3rd-2015)," Khanna Publisher ISSN/ISBN No. 9381068879, pp. 1-518.

(2) Sudakar Singh Chauhan, "Low Power CMOS Flash ADC (Edition-Sept.22, 2012)," LAP Lambert Academic ISBN-13-978-3659233852, pp. 1-101.

Book Chapters:

(1) **Sudakar Singh Chauhan,** Gaurav Verma and Vinod Naik, "Characteristics analysis of Si0.5Ge0.5 Doping-less PNPN TFET" Springer Lecture Notes in Electrical Engineering (LNEE), vol. 475, pp. 198-203, 2017. ISSN: 1876-1100, ISBN: 978-981-10-8239-9.

(2) G. Soumya, Gaurav Verma and **Sudakar Singh Chauhan**, "Improving the Utilization of Licensed Spectrum in Cognitive Radio" Springer Lecture Notes in Electrical Engineering (LNEE), vol. 475, pp. 280-287, 2017. ISSN: 1876-1100, ISBN: 978-981-10-8239-9.

(3) Neha Paras and **Sudakar Singh Chauhan**, "Linearity analysis of line tunneling based TFET for High Performance RF applications" Springer Lecture Notes in Electrical Engineering (LNEE), pp. 957-966, 2020 ISBN: 978-981-15-5340-0.

(4) Ankit Kesarwani, **Sudakar Singh Chauhan**, Anil Ramachandran Nair, and Gaurav Verma, "Supervised Machine Learning Algorithms for Fake News Detection" Springer Lecture Notes in Electrical Engineering (LNEE), pp. 767-778, 2020. ISBN: 978-981-15-5340-0.

(5) Arghya Biswas & **Sudakar Singh Chauhan**, "Modem Functionality Diagnostic Tool with Graphical User Interface for Cellular Network", Springer Advances in Intelligent System and Computing, vol.1, pp 44-53, 2020. ISBN: 978-981-15-8288-2.

Research Supervision:

Ph.D. Thesis Awarded: 03 **Ongoing: 01**

1. **Seema** 2K17/NITK/PHD/6170014 "Comprehensive Analysis of Band to Band Tunneling Based TFET for Low Power and High Frequency Application" **Awarded 24.08.2020**
2. **Neha Paras** 2K17/NITK/PHD/6170009 "Characterization of Vertical Tunneling based Tunnel Field Effect Transistor for Low Power Application" **Awarded 23.11.2020**
3. **Rajiv Kumar** 2K16/NITK/PHD/6160019 "Secure Transmission in Multiple-Input Multiple-Output Wireless Communication System" **Awarded 23.12.2020**
4. Priyanka Singh Roll no -61900138

M. Tech. Thesis Awarded:

Sr. No.	Name of the Candidate	Thesis Title
24	Ankit Yadav 32018204 VLSI Design	Design and Static Verification of Power Intent
23	Ishita Singhal 32018104 Embedded System Design	DOR Timing Analysis using Prime Time
22	Shilpi Kudaliya 31909106 ECE	Minimization of Peak to Average Power Ratio (PAPR) in Non-orthogonal Multiple Access (NOMA)

21	Anish 31911108 Embedded System Design	An FPGA based Convolution Neural Network (CNN) Accelerator
20	K. Maneesha 31911126 Embedded System Design	Physical Implementation of Hard Macro on a Lower Technology Node and the Power Delivery Network Analysis of IR Drop
19	K. Subhashini 31911123 Embedded System Design	Power Reduction Techniques on High Frequency Server Design
18	K. Fredy Sundar 31911107 Embedded System Design	Pre-Silicon and Post Silicon Validation of Integrated Low Speed Peripheral Controller Module
17	S. Ram Gopal 31911230 VLSI Design	MBIST Insertion into the Design and MBIST Validation
16	Arghaya Biswas 31811102 Embedded System Design	Modem Functionality Diagnostic Tool and Home Equipment Control System with Yocto
15	Subramaniam 31811211 VLSI Design	GNRFET based Mixed Logic Line Decoder in 2 to 4 and 4 to16 mode with 22nm technology
14	Karan Sharma 31811214 VLSI Design	Optical and Electronic properties of WS2/GaS Heterostructure
13	Ankit Kesarwani 31711112 Embedded System Design	Fake News Detection Using Supervised Machine Learning Algorithms
12	Abhishek Ananda 3170901 VLSI Design	Design & Simulation of Dual Metal Dual Gate drain Pocket TFET
11	M. Vinay Kumar 31611117 Embedded System Design	The Control and Monitoring of Smart Home Security System
10	Neha Sharma 31511218 VLSI Design	Impact of Spacer and Drain Workfunction Engineered on the Analog Performance of Dopingless DGTFET
9	Sapna Singh 31511233 VLSI Design	Performance Analysis of Junctionless and Vertical DGTFET with Spacer
8	Neeraj Sharma 31511102 Embedded System Design	Characteristics Analysis of Dopingless DGTFET using Gate & Drain Engineered Workfunction with High Dielectric Material as a Spacer.
7	Eslavath Raja Naik 31511104 Embedded System Design	Performance Analysis of Spacer-N+ Pocket based DGDL-TFET for Enhanced Analog Performance
6	Rupali Nirala 31505116 ECE	Enhancing Physical Layer Security in Relaying System
5	Ruchi Juyal 3146501 VLSI Design	TCAD Simulation Based Study of Different Hetrostructure Dopingless Tunnel Field Effect Transistors
4	Chebrolu Gopi 3146608 VLSI Design	Sentaurus TCAD based simulation to enhance ON current in Tunnel FETs
3	Banoth Vinod Naik 3146619 VLSI Design	Sentaurus TCAD based comparative study of Si and $Si_{0.5}Ge_{0.5}$dopingless Tunnel FETs
2	Arun Sunny 3141511 Embedded System Design	Design and Analysis of GaN MOSFET based on AlGaN/GaN Heterostructure using Sentaurus TCAD
1	Kaushal Kumar 3132515 ECE	Physical Layer Security in Scalable Wireless Sensor Networks

Administrative/ Academic Responsibilities:

1) NBA Coordinator, Department of ECE, Guru Ghasidas Vishwavidyalaya 2023.
2) Member of NBA Accreditation, ECE Department NIT Kurukshetra (2014-2017) and only ECE Department received 6 years Accreditation.
3) Member of PG NBA Accreditation, ECE Department NIT Kurukshetra (2016-2021) and ECE Department received 3 years Accreditation.
4) Member of Board of Studies, ECE Department NIT Kurukshetra from 2016-2019.
5) Coordinator and paper setter of various subjects in ECE Department NIT Kurukshetra (2013-2020).
6) Member of thesis/project evaluation committee.
7) Incharge Stock Verification, CCN department (2016), Physics & Humanities Department (2018) & Hostel No 7 (2022).
8) Member of Budget requirement committee for the financial year of 2017-18.
9) Member of syllabus revision committees for B. Tech & M. Tech courses (2016), (2019).
10) Paper setter of many other Universities/Institutions from 2010 onwards.
11) Conducted Ph.D. comprehensive exams, M.Tech thesis evaluations and B.Tech practical exams of other Universities/Institutions.
12) Faculty-in-charge Kabaddi (2017).
13) Member of updation of Departmental information on the website (2017) & (2020-2023).
14) Worked as a counselor in UG and PG Admission.
15) Faculty-in-charge Cricket & Kabaddi (2018).
16) Warden of Hostel No.1, NIT Kurukshetra (2018-2019).
17) Warden of Hostel No.2, NIT Kurukshetra (2022-2023).
18) Professor-in-charge Time Table ECE Department from 2017-2020.
19) Professor-in-charge Microprocessor and VLSI Lab from 2017-2019.
20) Professor-in-charge Advanced Electronics Lab from 2019-2023.
21) Member of Department Purchase Committee (DPC) from 2019-2023.
22) Professor-in-charge Practical Training/Internship ECE Department from 2017 to 2019.
23) Served as a Deputy Superintendent of Exam in NIT Kurukshetra (Nov/Dec 2017).
24) Presiding Officer, Election Commission of India (2014).
25) Micro Observer, Election Commission of India (2019).

Additional Information:

Publications Summary:

International Journal: **35 [SCI: 31, Scopus Index: 03]**

International Conference: **22**

National Conference: **02**

Books: **02**

Book Chapters: **05**
Patent: **03 Published**
Project: **03 Completed**
Conference/STC organized/TPC Member: **16**
Expert Lecture & Session Chair: **13**

Patents: 03

(1) **Published** a patent titled "Ambipolarity free Vertical Tunnel Field Effect Transistor" in **Patent Office Journal No. 09/2020** dated February 28, 2020 under section 11A of the Indian Patents Act, 1970.
(2) **Published** a patent titled "Two-Dimensional In-Line Semiconductor Device" in **Patent Office Journal No. 27/2021** dated July 2, 2021 under section 11A of the Indian Patents Act, 1970.
(3) **Published** a patent titled **"**Secrecy Performance Analysis of Heterogeneous Multi user MIMO system in the presence of outdated CSI over Rayleigh Fading Channel" in **Patent Office Journal** dated Sept. 29, 2022 under section 11A of the Indian Patents Act, 1970.

Conference/Short Term Course Organized:

1) Serving as a **Technical Program Committee** member of IEEE 5th International Conference on Advances in Computer Technology, Information Science and Communications (CTISC 2023) held on Suzhou, China from April 21-23, 2023.
2) Served as a **Technical Program Committee** member of IEEE 4th International Conference on Advances in Computer Technology, Information Science and Communications (CTISC 2022) held on Suzhou, China from April 22-24, 2022
3) Served as a **Technical Program Committee** member of International Conference on Electrical, Electronics and Computing Technology (CEECT 2021) held on Xiamen, China from March 26-28, 2021.
4) Served as a **Technical Program Committee** member of Springer International Conference on Advances and Applications of Artificial Intelligence and Machine Learning (ICAAAIML-2020) held on Sharda University Greater Noida Uttar Pradesh, October 29-30, 2020.
5) Served as a **Technical Committee member** of Springer Workshop on Machine learning, Deep learning and Computational Intelligence for Wireless Communication (MDCWC2020) held on National Institute of Technology Tiruchirappalli, India, October 22-24, 2020.
6) Served as a conference **Technical Committee member** of International Conference on Advances in Computing, Communication & Materials (ICACCM)-2020 jointly organized by Uttarakhand Technical University, Dehradun & Tula's Institute, Dehradun, Aug. 21-22, 2020.

7) Served as a conference **Technical Committee** of 3rd Springer International Conference on Sensors, Signal & Image Processing (SSIP-2020) held on October 9–11, 2020, Prague, Czech Republic.
8) Served as **Organizing Secretary** in 1st Springer International Conference on Advanced Communication & Computational Technology (ICACCT-2019) organizing at NIT Kurukshetra, Dec. 6-7, 2019.
9) Served as **Organizing Chair** in 4th IEEE International Conference on Computing, Communication & Security (ICCCS-2019) organizing at University of Cagliari, Italy, October 10-12, 2019.
10) Served as a **Course Coordinator** in one-week Short Term Course on Wireless Communication and Signal Processing with Hands-On in MATLAB organized at NIT Kurukshetra, April 8-13, 2019.
11) Served as **Organizing Chair** in 5th IEEE International Conference on Advances in Computing & Communication Engineering (ICACCE-2019) organized at Bannari Amman Institute of Technology, Tamil Nadu April 4-6, 2019
12) Served as a **Course Coordinator** in one-week Short Term Course on "Emerging Trends in Wireless Communication & Signal Processing during Jan. 7-12, 2019 at ECE Deptt., NIT Kurukshetra.
13) Served as **Technical Program Committee** in International Conference on Manufacturing, Advance Computing, Renewable Energy and Communication (MARC-2018) organized at HMR Institute of Technology and Management (HMRITM), July 19-20, 2018.
14) Served as **General Co-Chair** in International Conference on New Technological Opportunities in Networking & Sciences (Newtons-2018) organized at Seemant Institute of Technology, Pithoragarh Uttarakhand, June 8-10, 2018.
15) Served as a **Programme Committee** member in IEEE international conference on Engineering Trends in Communication Technologys (ICETCT-2016) organized by GEU, Dehradun, Uttarakhand Nov. 18-19, 2016.
16) Served as **Publicity Committee** in International Conference on Computing, Communication and Security (ICCCS-2015), Dec. 4-6, 2015, at Le Meridien, Mauritius.
https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7374116

Expert Lecture & Session Chair:

1) Presented an **Expert Lecture** on Low Power VLSI Device (TFET) in two-week FDP on Low Power VLSI Design organized at NIT Warangal, 28 March- 7 April 2022. (29 March 2022)
2) Presented an **Expert Lecture** on Tunnel Field Effect Transistor in two-week FDP on Introduction to Low Power VLSI Design & Application organized at NIT Warangal, 23 Dec 2021-03 Jan 2022. (27 Dec. 2021)

3) Presented an **Expert Lecture** on IOT Communication & Application Protocols in one week Induction/Refresher Program on Internet of Things & Smart Technologies organized at MIET Jammu, Dec. 13-18, 2021. (14 Dec. 2021)
4) Served as a **Session Chair** in Springer International workshop on Machine Learning, Deep Learning and Computational Intelligence for Wireless Communication (MDCWC 2020) organized by NIT Trichy, Oct. 22-24, 2020.
5) Served as a **Session Chair** in International Conference on Advances in Computing, Communication & Materials (ICACCM)-2020 jointly organized by Uttarakhand Technical University, Dehradun & Tula's Institute, Dehradun, Aug. 21-22 2020.
6) Presented an **Expert Lecture** on MIMO Systems in one-week Short Term Course on Wireless Communication and Signal Processing with Hands-On in MATLAB organized at NIT Kurukshetra, April 8-13, 2019.
7) Served as **Session Chair** in 5th IEEE International Conference on Advances in Computing & Communication Engineering (ICACCE-2019) organized at Bannari Amman Institute of Technology, Tamil Nadu April 4-6, 2019
8) Presented an **Invited Lecture** on "Fundamental of Wireless Communication & MIMO Communication" in short term course on Emerging Trends in Wireless Communication & Signal Processing during Jan. 7-12, 2019 at ECE Deptt., NIT Kurukshetra.
9) Presented an **Invited Lecture** on "Signals & Systems" on Sept. 17, 2018 at ECE Department, SATI Vidhisa.
10) Served as a **Session Chair** in IEEE International Conference on Engineering Trends in Communication Technology (ICETCT-2016) organized by GEU, Dehradun, Uttarakhand Nov 18-19, 2016.
11) Served as a **Session Chair** in IEEE international conference on Advances in Computing and Communication Engineering (ICACCE) organized by BTKIT, Dwarahat, Uttarakhand, Feb. 22-23, 2014.
12) Presented an **Invited Lecture** on "Wireless communication channel model" in short term training program of Modeling and Simulation of Wireless Communication System organized by Department of Electronics & Communication Engineering organized by National Institute of Technology, Kurukshetra, June 20-24, 2016,
13) Presented an **Invited Talk** on "4G Wireless Communication" in IEEE International Conference on Advances in Computing and Communication Engineering organized by BTKIT, Dwarahat, Uttarakhand, Feb. 22-23, 2014.

Subjects Taught/Laboratories Engaged at UG/PG Level

Subjects Taught at UG Level:

1. Semiconductor Devices & Applications
2. Analog Communication

Subjects Taught at PG Level:

1. MIMO Systems
2. Solid State Devices

3. Control Systems
4. Analog Integrated Circuit
5. Physical Design of Digital ICs
6. Linear IC Applications
7. Electronic Devices & Circuits
8. Digital Circuits
9. Analog Electronics
10. Microprocessor
11. Analog MOS IC Design
12. Digital IC Design
13. Cellular Mobile Communication

3. Wireless Sensor Networks
4. Digital IC Design
5. Analog CMOS IC Design

Laboratories engaged at UG/PG level:

1. Electronic Devices & Circuits
2. Electronic Circuit Simulation
3. Communication
4. Electronic Design
5. Electronics-II
6. VHDL
7. Transmission Lines & Antenna Lab
8. Microwave Lab

Dr. Sudakar Singh Chauhan