



# Dr. Prateek Raj Gautam

Ph.D., Electronics and Communication Engineering,  
Motilal Nehru National Institute of Technology Allahabad

ORCID:0000-0002-2889-4275,

WOS:1552109,

IEEE:91250146,

SCHOLAR:sIzHj6cAAAAJ

## WORK EXPERIENCE

**Assistant Professor – Senior Scale**, School of Computer Science February 2024 – **Present**  
UPES Dehradun, Uttarakhand.  
**Assistant Professor**, Computer Science & Engineering August 2022 – February 2024  
Centre for Advanced Studies, AKTU, Lucknow, UP.  
**Assistant Professor**, Electronics & Communication Engineering July 2013 – December 2015  
Allehnouse Institute of Technology, Kanpur, UP.  
**Assistant Professor**, Electronics & Communication Engineering June 2012 – July 2013  
Naraina College of Engineering and Technology, Kanpur, UP.

## EDUCATION

**Ph. D.** 2016–2021  
Electronic & Communication Engineering (Wireless Sensor Networks), **Motilal Nehru National Institute of Technology Allahabad, Prayagraj (UP), India**. Thesis Title: “Energy Efficient 2D and 3D Localization in Wireless Sensor Networks using Single Anchor Node”.

**M. Tech.** 2009–2011  
Electronic & Communication Engineering, **Harcourt Butler Technological Institute (HBTI) Kanpur (UP), India**, with an aggregate of 67.55%. Thesis Title: “Generalized One Dimensional Optical Orthogonal Coding Scheme for CDMA Systems with its Grouping and Performance Analysis”.

**B. Tech.** 2004–2008  
Electronics & Communication Engineering, **University Institute of Engineering and Technology (UIET), CSJMU Kanpur (UP), India**, with an aggregate of 62.00%.

**12 (AISSCE)** 2004  
Mathematics, Biology, Physics, Chemistry, and English; **Kendriya Vidyalaya, IIT Kanpur (CBSE)**, with an aggregate of 58.40%.

**10 (AISSE)** 2002  
Mathematics, Science, Social Studies, Hindi, and English; **Kendriya Vidyalaya, IIT Kanpur (CBSE)**, with an aggregate of 67.40%.

## RESEARCH INTERESTS & COURSES DELIVERED

Wireless Sensor Networks (WSNs) / Internet of Things (IoTs), Energy efficient WSN Localization, Wireless Communication, CDMA, IDMA, Brain Wave Mapping. Machine Learning AI/ML & Computer Vision  
**Post Grad. (M.Tech.):** Machine Learning, Computer Vision, Reinforcement Learning, Internet of Things, Data Communication Networks, Research Methodology, Concepts of Electrical & Electronics Engineering  
**Under Grad. (B.Tech.):** Digital Electronics, Microporcessors, EMFT, Digital Communication, Measurements, Analog Integrated Circuits.

## COMPUTER SKILLS

• **MATLAB** (previous collaborations: [github.com/mgeekmatlab](https://github.com/mgeekmatlab)), • **LabVIEW**, • **LTspice**, • **Embedded/IoT** design and programming **Arduino IDE/PlatformIO**, • **CST Studio**, • **KiCAD**, • **LaTeX** (pgfplots/tikz/beamer), • **Gnuplot**, • **Word/Excel**, **LibreOffice**, • **Photoshop/Corel Draw/Inkscape/GIMP**, • **Blender**, • **Github**, • **Web design: HTML, CSS, Javascript**, **Git**, **DevOps**, **CICD**, **Jenkins**, **Ansible**, **Github pages**, **Jekyll**, **hosting and server management**, **WordPress**, **Django** (Designed and hosted conference (vcas2018) website at MNNIT ECED, online at [mnnit.ac.in/vcas2018](https://mnnit.ac.in/vcas2018)), • **Python** (tkinter/kivy/eel) (Designed GUI based hotspot software online at [fwh.mgeek.in](https://fwh.mgeek.in)), (Form filler software online at [formhelper.mgeek.in](https://formhelper.mgeek.in)). • Designed **GeneratorJS** library in JavaScript and **PyGenerator** module in python for website templating and front-end design available online at [generatorjs.mgeek.in](https://generatorjs.mgeek.in). • **Docker**, **Proxmox**. • **Linux**, **bash**, **Nix** and **NixOS**.

- [J1] **P. R. Gautam**, S. Kumar, A. Verma, T. Rashid, *et al.*, “Energy-efficient localization of sensor nodes in WSNs using beacons from rotating directional antenna,” *IEEE Transactions on Industrial Informatics*, vol. 15, no. 11, pp. 5827–5836, Nov. 2019. DOI: [10.1109/tii.2019.2908437](https://doi.org/10.1109/tii.2019.2908437) issn 1551-3203 **Impact Factor: 12.3** **SCIE, Q1**
- [J2] **P. R. Gautam**, S. Kumar, A. Verma, and A. Kumar, “Energy-efficient localization of sensor nodes in wsns using single beacon node,” *IET Communications*, vol. 14, no. 9, pp. 1459–1466, 2020. DOI: [10.1049/iet-com.2019.1298](https://doi.org/10.1049/iet-com.2019.1298) issn 1751-8628 **Impact Factor: 1.6** **SCIE, Q2**
- [J3] A. Verma, S. Kumar, **P. R. Gautam**, and A. Kumar, “Fuzzy logic based effective clustering of homogeneous wireless sensor networks for mobile sink,” *IEEE Sensors Journal*, vol. 20, no. 10, pp. 5615–5623, May 2020. DOI: [10.1109/jsen.2020.2969697](https://doi.org/10.1109/jsen.2020.2969697) issn 1530-437X **Impact Factor: 4.3** **SCIE, Q1**
- [J4] A. Verma, S. Kumar, **P. R. Gautam**, and A. Kumar, “Neural-fuzzy based effective clustering for large-scale wireless sensor networks with mobile sink,” *Peer-to-Peer Networking and Applications*, Jun. 2021. DOI: [10.1007/s12083-021-01167-6](https://doi.org/10.1007/s12083-021-01167-6) issn 1936-6450 **Impact Factor: 4.2** **SCIE, Q2**
- [J5] A. Verma, S. Kumar, **P. R. Gautam**, T. Rashid, *et al.*, “Broadcast and reliable coverage based efficient recursive routing in large-scale wsns,” *Telecommunication Systems*, vol. 75, no. 1, pp. 63–78, Jun. 2020. DOI: [10.1007/s11235-020-00679-5](https://doi.org/10.1007/s11235-020-00679-5) issn 1572-9451 **Impact Factor: 2.5** **SCIE, Q2**
- [J6] M. Yadav, **P. R. Gautam**, V. Shokeen, and P. K. Singhal, “Modern fisher–yates shuffling based random interleaver design for SCFDMA-IDMA systems,” *Wireless Personal Communications*, vol. 97, no. 1, pp. 63–73, May 2017. DOI: [10.1007/s11277-017-4492-9](https://doi.org/10.1007/s11277-017-4492-9) issn 0929-6212 **Impact Factor: 2.2** **SCIE, Q2**
- [J7] A. Verma, T. Rashid, **P. R. Gautam**, S. Kumar, *et al.*, “Cost and sub-epoch based stable energy-efficient clustering algorithm for heterogeneous wireless sensor networks,” *Wireless Personal Communications*, vol. 107, no. 4, pp. 1865–1879, Apr. 2019. DOI: [10.1007/s11277-019-06362-6](https://doi.org/10.1007/s11277-019-06362-6) issn 0929-6212 **Impact Factor: 2.2** **SCIE, Q2**
- [J8] T. Rashid, S. Kumar, A. Verma, **P. R. Gautam**, *et al.*, “Co-reerp: Cooperative reliable and energy efficient routing protocol for intra body sensor network (intra-wbsn),” *Wireless Personal Communications*, vol. 114, no. 2, pp. 927–948, Apr. 2020. DOI: [10.1007/s11277-020-07401-3](https://doi.org/10.1007/s11277-020-07401-3) issn 0929-6212 **Impact Factor: 2.2** **SCIE, Q2**
- [J9] S. Kumar, **P. R. Gautam**, A. Verma, T. Rashid, *et al.*, “An energy-efficient transmission in wsns for different climatic conditions,” *Wireless Personal Communications*, vol. 110, no. 1, pp. 423–444, Sep. 2019. DOI: [10.1007/s11277-019-06735-x](https://doi.org/10.1007/s11277-019-06735-x) issn 0929-6212 **Impact Factor: 2.2** **SCIE, Q2**
- [J10] S. Kumar, **P. R. Gautam**, T. Rashid, A. Verma, *et al.*, “Division algorithm based energy-efficient routing in wireless sensor networks,” *Wireless Personal Communications*, Aug. 2021. DOI: [10.1007/s11277-021-08996-x](https://doi.org/10.1007/s11277-021-08996-x) issn 1572-834X **Impact Factor: 2.2** **SCIE, Q2**
- [J11] R. C. S. Chauhan, A. Kumar, and **P. R. Gautam**, “Optical orthogonal code generation scheme and grouping of codes for optical CDMA systems,” *International Journal of System Assurance Engineering and Management*, vol. 12, no. 1, pp. 91–103, 1 Jun. 2020. DOI: [10.1007/s13198-020-01007-5](https://doi.org/10.1007/s13198-020-01007-5) issn 0976-4348 **Impact Factor: 2** **SCIE, Q3**
- [J12] **P. R. Gautam**, A. Verma, S. Kumar, D. Prasad, *et al.*, “Design of directional antennas for wireless sensor networks and the internet of things experiments,” *IEEE Sensors Letters*, vol. 6, no. 9, pp. 1–4, 2022. DOI: [10.1109/LENS.2022.3202919](https://doi.org/10.1109/LENS.2022.3202919) issn 2475-1472 **Impact Factor: 2.8** **SCIE, Q2**
- [J13] Shilpi, **P. R. Gautam**, S. Kumar, and A. Kumar, “An optimized sensor node localization approach for wireless sensor networks using rssi,” *The Journal of Supercomputing*, vol. 79, pp. 7692–7716, 2022. DOI: <https://doi.org/10.1007/s11227-022-04971-w> issn 0920-8542 **Impact Factor: 3.3** **SCIE, Q2**
- [J14] A. Verma, S. Kumar, **P. R. Gautam**, T. Rashid, *et al.*, “Enhanced cost and sub-epoch based stable energy-efficient clustering algorithm for heterogeneous wireless sensor networks,” *Wireless Personal Communications*, Jul. 2023. DOI: [10.1007/s11277-023-10601-2](https://doi.org/10.1007/s11277-023-10601-2) issn 1572-834X **Impact Factor: 2.2** **SCIE, Q2**
- [J15] S. Kumar, **P. R. Gautam**, T. Rashid, A. Verma, *et al.*, “ETDCC: Energy-efficient transmission scheme for dynamic climatic conditions in WSN,” *TELKOMNIKA (Telecommunication Computing Electronics and Control)*, vol. 16, no. 3, p. 1126, Jun. 2018. DOI: [10.12928/telkomnika.v16i3.8513](https://doi.org/10.12928/telkomnika.v16i3.8513) issn 1693-6930 **Scopus**

- [J16] T. Rashid, S. Kumar, A. Verma, **P. R. Gautam**, *et al.*, “Pm-EEMRP: Postural movement based energy efficient multi-hop routing protocol for intra wireless body sensor network (intra-WBSN),” *TELKOMNIKA (Telecommunication Computing Electronics and Control)*, vol. 16, no. 1, p. 166, Feb. 2018. DOI: [10.12928/telkomnika.v16i1.7318](https://doi.org/10.12928/telkomnika.v16i1.7318) issn 1693-6930 **Scopus**
- [J17] A. Verma, T. Rashid, **P. R. Gautam**, S. Kumar, *et al.*, “Fuzzy based stable clustering protocol for Heterogeneous wireless sensor networks,” *International Journal of Engineering and Technology*, vol. 9, no. 4, pp. 2854–2860, Aug. 2017. DOI: [10.21817/ijet/2017/v9i4/170904046](https://doi.org/10.21817/ijet/2017/v9i4/170904046) issn 0975-4024 **Scopus 2017**
- [J18] T. Rashid, S. Kumar, A. Verma, **P. R. Gautam**, *et al.*, “RB-IEMRP: Relay based improved throughput energy-efficient multi-hop routing protocol for intra body sensor network (INTRA-WBSN),” *International Journal of Computer Networks & Communications*, vol. 11, no. 02, pp. 69–82, Mar. 2019. DOI: [10.5121/ijcnc.2019.11205](https://doi.org/10.5121/ijcnc.2019.11205) issn 0974-9322 **Scopus**
- [C1] **P. R. Gautam**, S. Kumar, A. Verma, and A. Kumar, “Localization of sensor nodes in WSNs using three dimensional angle of arrival detection at BS,” in *2019 International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, ZHCET, AMU, Aligarh: IEEE, Nov. 2019, pp. 1–4. DOI: [10.1109/upcon47278.2019.8980262](https://doi.org/10.1109/upcon47278.2019.8980262) isbn: 9781728134550 issn 2687-7767 **Scopus**
- [C2] **P. R. Gautam**, S. Kumar, A. Verma, T. Rashid, *et al.*, *Localization of Sensor Nodes in WSN Using Area Between a Node and Two Beacons* (Lecture Notes in Electrical Engineering). Motilal Nehru National Institute of Technology, Allahabad: Springer, Dec. 2019, vol. 587, pp. 221–228, 1060 pp. DOI: [10.1007/978-981-32-9775-3\\_22](https://doi.org/10.1007/978-981-32-9775-3_22) isbn: 9813297743 issn 1876-1100 **Book chapter**
- [C3] **P. R. Gautam**, S. Kumar, and A. Kumar, “Sensor localization in wsns using rotating directional - antenna at the base station,” in *Advances in VLSI, Communication, and Signal Processing*, ser. Lecture Notes in Electrical Engineering, vol. 683, Motilal Nehru National Institute of Technology, Allahabad: Springer, Oct. 2020, pp. 705–718. DOI: [10.1007/978-981-15-6840-4\\_58](https://doi.org/10.1007/978-981-15-6840-4_58) isbn: 978-981-15-6839-8 issn 1876-1100 **Book chapter**
- [C4] A. Kumar, S. Kumar, **P. R. Gautam**, A. Verma, *et al.*, *Performance Evaluation of Multi-operands Floating-Point Adder* (Lecture Notes in Electrical Engineering). JK Institute of Applied Physics and Technology, Allahabad University, Allahabad: Springer Singapore, Dec. 2019, vol. 524, pp. 537–546. DOI: [10.1007/978-981-13-2685-1\\_51](https://doi.org/10.1007/978-981-13-2685-1_51) isbn: 9811326843 issn 1876-1119 **Book chapter**
- [C5] S. Kumar, A. Verma, **P. R. Gautam**, A. Dayal, *et al.*, “The load balancing of optimizing LEACH clustering algorithm with mobile sink and rendezvous nodes,” in *2018 5th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, Madan Mohan Malaviya University of Technology, Gorakhpur: IEEE, Nov. 2018. DOI: [10.1109/upcon.2018.8596989](https://doi.org/10.1109/upcon.2018.8596989) isbn: 978-1-5386-5002-8 issn 2687-7759 **Scopus**
- [C6] S. Kumar, **P. R. Gautam**, A. Verma, R. Verma, *et al.*, *Energy Efficient Routing using Sectors Based Energy-Hole Reduction in WSNs*. ZHCET, AMU, Aligarh: IEEE, 2019. DOI: [10.1109/upcon47278.2019.8980254](https://doi.org/10.1109/upcon47278.2019.8980254) isbn: 978-1-7281-3455-0 issn 2687-7767 **Scopus**
- [C7] A. Verma, S. Kumar, **P. R. Gautam**, and A. Kumar, *Stable Energy-Efficient Routing Algorithm for Dynamic Heterogeneous Wireless Sensor Networks* (Lecture Notes in Electrical Engineering). Motilal Nehru National Institute of Technology, Allahabad: Springer, Dec. 2019, vol. 587, pp. 221–228, 1060 pp. DOI: [10.1007/978-981-32-9775-3\\_15](https://doi.org/10.1007/978-981-32-9775-3_15) isbn: 9813297743 issn 1876-1100 **Book chapter**
- [C8] S. Shilpi, **P. R. Gautam**, S. Kumar, and A. Kumar, “A comparative analysis of distance-based node localization in wireless sensor network,” in *2021 8th International Conference on Signal Processing and Integrated Networks (SPIN)*, vol. 0, 2021, pp. 118–123. DOI: [10.1109/SPIN52536.2021.9566136](https://doi.org/10.1109/SPIN52536.2021.9566136) isbn: 9781665435642 issn 0 **Scopus**
- [C9] M. Yadav, **P. R. Gautam**, and K. Singhal P., “Inverse tree interleavers in uav communications for interference mitigation,” in *Decision Support Systems for Smart City Applications* (Concise Introductions to AI and Data Science), Concise Introductions to AI and Data Science. John Wiley & Sons, Ltd, Dec. 2022, ch. 3, pp. 35–52. DOI: [10.1002/9781119896951.ch3](https://doi.org/10.1002/9781119896951.ch3) isbn: 9781119896951 issn **Book chapter**
- [C10] A. Rukasar and P. R. Gautam, “Lane detection and tracking algorithms for driver assistance system,” in 2023, pp. 872–879. DOI: [10.1109/icac3n60023.2023.10541447](https://doi.org/10.1109/icac3n60023.2023.10541447) isbn: 9798350330861 issn **scopus**

- [C11] V. Kumar, A. Kumar, and **P. R. Gautam**, “Dental disease detection and classification in radiograph images using deep learning model,” in 2023, pp. 1198–1203. DOI: [10.1109/ICAC3N60023.2023.10541747](https://doi.org/10.1109/ICAC3N60023.2023.10541747) isbn: 9798350330861 issn [scopus](#)
- [C12] N. Awasthi, **P. R. Gautam**, and A. Sharma, “Rfecv-dt: Recursive feature selection with cross validation using decision tree based android malware detection,” in 2024. DOI: [10.1109/ICCCNT61001.2024.10725127](https://doi.org/10.1109/ICCCNT61001.2024.10725127) isbn: 9798350370249 issn [scopus](#)
- [C13] M. Ansari and **P. R. Gautam**, “Classification of soil moisture content with the application of deep learning,” in 2024. DOI: [10.1109/ICIC3S61846.2024.10603387](https://doi.org/10.1109/ICIC3S61846.2024.10603387) isbn: 9798350364088 issn [scopus](#)
- [C14] A. Sharma, A. Upadhyay, and **P. R. Gautam**, “Prediction of water discharge in mahanadi river basin, india using artificial neural networks,” in 2025, vol. 1, pp. 28–32. DOI: [10.1201/9781003501244-5](https://doi.org/10.1201/9781003501244-5) isbn: 9781032911571 issn [scopus](#)
- [C15] P. Mishra, J. Singh, and **P. R. Gautam**, “Mustard and wheat mildew disease classification using deep learning,” in 2025, vol. 1, pp. 72–78. DOI: [10.1201/9781003501244-14](https://doi.org/10.1201/9781003501244-14) isbn: 9781032911571 issn [scopus](#)
- [C16] A. Upadhyay, A. Sharma, and **P. R. Gautam**, “Estimation of sediment load in mahanadi river, india using artificial neural networks,” in 2025, vol. 1, pp. 23–27. DOI: [10.1201/9781003501244-4](https://doi.org/10.1201/9781003501244-4) isbn: 9781032911571 issn [scopus](#)
- [C17] M. Ansari and **P. R. Gautam**, “Comparison of different pre-trained deep learning models for classification of soil moisture content,” in 2025, vol. 2, pp. 107–113. DOI: [10.1201/9781003561651-15](https://doi.org/10.1201/9781003561651-15) isbn: 9781032911571 issn [scopus](#)

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PAPER  
PRESENTED

“**Localization of Sensor Nodes in WSNs using Three Dimensional Angle of Arrival detection at BS**” In *1st International Conference on VLSI, Communication and Signal Processing (VCAS 2018)* at MNNIT Allahabad (UP) India. 29th November to 1st December 2018

“**Sensor Localization in WSNs Using Rotating Directional - Antenna at the Base Station.**” In *2nd International Conference on VLSI, Communication and Signal Processing (VCAS 2019)* at MNNIT Allahabad (UP) India. 21st – 23rd October 2019

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JOURNAL  
REVIEWER AND  
EDITOR

• IEEE Transactions on Industrial Informatics WOS (3), • IET Communications WOS (6),  
• International Journal of Distributed Sensor Networks WOS (1), • Asian Journal of Cardiology Research (1), • SN Applied Sciences WOS (1), • Telecommunication Systems (3), • Journal of Optical Communications (1), • Optica Applicata (1), • International Journal of Procurement Management (1), and • **AE IJSAEM** (8).

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WORKSHOPS  
/FDP

1. **One-week GIAN workshop “Advances in Nanotechnology and its Application in Future Electronics (ANFE-2017)” held at MNNIT Allahabad.**  
– Participated and volunteered 6th – 10th November, 2017
  2. **Ten days GIAN workshop on “Internet of Things in Smart Living & Cyber-Physical-Social Systems” held at IIT Kanpur.**  
– Participated and volunteered. 8th – 17th January 2018
  3. **Summer training program on “VLSI Design & Embedded System (VDES-2018)” held at MNNIT Allahabad.**  
– Volunteered. 13th June – 12th July, 2018
  4. **ATAL Academy FDP on “Blockchain” held at MNNIT Allahabad.**  
– Participated. 16th – 20th September 2019
  5. **ATAL Academy FDP on “Artificial Intelligence” held at MNNIT Allahabad.**  
– Participated. 10th – 14th December 2019
  6. **One-week short term course on “Computational Physics” held at MNNIT Allahabad.**  
– Participated. 1st – 5th March 2021
  7. **One-week FDP on “IPR Awareness and Patent Prosecution” held at MNNIT Allahabad.**  
– Participated. 13th – 17th July 2021
  8. **One-week FDP on “Antenna Design and Microwave Applications” held at HBTU Kanpur.**  
– Participated. 23th – 27th July 2021
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WORKSHOPS FACILITATED	Manuscript preparation in LaTeX, Programming with 8051 micro-controller.
AWARDS AND OTHER ACHIEVEMENTS	<ol style="list-style-type: none"> <li>1. Awarded national scholarship “RG-NFSC” from UGC. 2017-2021</li> <li>2. Offered national scholarship “MANF” from UGC based on NET score 2020</li> <li>3. Eight times GATE qualified. 2008, 2009, 2012, 2013, 2014, 2016, 2017, and 2020</li> <li>4. Three times UGC NET (Electronics Science) qualified. Jul-2016, Jan-2017, and Dec-2019</li> <li>5. Member of IEEE, IEEE Industrial Electronics Society, IEEE Microwave Theory and Techniques Society, and IEEE Broadcast Technology Society.</li> <li>6. NPTEL Online Certification on MATLAB for Numerical Computations.</li> </ol>
REFERENCES	<ol style="list-style-type: none"> <li>1. Dr. Arvind Kumar <i>Associate Professor</i>, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: <a href="mailto:arvindk@mnnit.ac.in">arvindk@mnnit.ac.in</a> Mob:7081869266, – <i>Ph.D. Thesis Supervisor</i></li> <li>2. Dr. Arun Prakash <i>Associate Professor</i>, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: <a href="mailto:arun@mnnit.ac.in">arun@mnnit.ac.in</a> Mob:9794008282.</li> <li>3. Dr. Basant Kumar <i>Associate Professor</i>, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: <a href="mailto:singhbasant@mnnit.ac.in">singhbasant@mnnit.ac.in</a> Tel:+91-0532-2271468.</li> <li>4. Dr. Vijay Shankar Tripathi <i>Professor</i>, ECED, MNNIT Allahabad, Teliyarganj, Prayagraj, UP 211004, E.Mail: <a href="mailto:vst@mnnit.ac.in">vst@mnnit.ac.in</a> Mob:8004818000.</li> <li>5. Dr. Ram Chandra Singh Chauhan <i>Associate Professor</i>, ECED, IET, Sitapur Road, Lucknow UP, E.Mail: <a href="mailto:ram1.hbti@gmail.com">ram1.hbti@gmail.com</a> Mob:9336050184. – <i>M.Tech. Dissertation Supervisor</i></li> </ol>
DECLARATION	<p>I hereby declare that the above information given is true to the best of my knowledge and I bear the responsibility for the correctness of the above-mentioned particulars.</p> <p><i>Signature of Dr. Arvind Kumar</i></p> <p>May 2, 2025</p>