

# ASHUTOSH

Electrical and Electronics Engineering (National Institute of Technology Meghalaya)

Control and Instrumentation Engineering (Delhi Technological University Delhi)

Email ID: [ashutoshgupta.nitm@gmail.com](mailto:ashutoshgupta.nitm@gmail.com)



Ph. No.: +91-9870321242

To work in a challenging and intellectually stimulating environment that offers growth avenues based on capabilities and hard work.

## ACADEMIC RECORD

**B. Tech in Electrical and Electronics Engineering** from NIT Meghalaya.

**M.Tech in Control and Instrumentation Engineering** from DTU, Delhi.

**Ph.D. in Power Electronics Converters** from DTU, Delhi. (*Thesis Submitted*)

| CLASS/DEGREE                 | INSTITUTE                                   | YEAR      | PERCENTAGE/CGPA |
|------------------------------|---------------------------------------------|-----------|-----------------|
| High School (I.C.S.E. Board) | St. Dominic Savio College, Lucknow          | 2008      | 78%             |
| Intermediate (I.S.C. Board)  | Modern Academy, Lucknow                     | 2010      | 72%             |
| B. Tech                      | National Institute of Technology, Meghalaya | 2015      | 8.32            |
| M. Tech                      | Delhi Technological University, Delhi       | 2020      | 8.61            |
| Ph.D.                        | Delhi Technological University, Delhi       | 2021-2025 | 9.00            |

## DEPARTMENTAL COURSES UNDERTAKEN IN M.TECH.

Integrated Electronics and Applied Instrumentation, Process Instrumentation and Control, Modelling Identification and Control, Discrete Data Systems and Digital Control, Microcontroller and Embedded System, Non-Linear Control Theory, Computer Communication and Control, Advance Control System Design, Intelligent Instrumentation, SCADA and Energy Management System.

## DEPARTMENTAL COURSES UNDERTAKEN IN B.TECH.

Linear Electronics, Electrical Circuits, Electrical Machines, Digital Circuits, Network and Circuits, Analog Integrated Circuits, Control Systems, Engineering Electromagnetics, Power System Analysis, Switchgear and Protection, Power System Operation and Control, Microprocessor, Microcontroller and Embedded System, Measurement and Instrumentation, Digital Signal and Processing, Power Electronics, Electrical Drives, Digital Communication and Networking.

## EXPERIENCE

### Bharati Vidyapeeth's College of Engineering | July 2024 – Present

- Assistant Professor, Electrical and Electronics Engineering Department
- Lab In-charge for Electric Vehicle and Battery Management System (Centre of Excellence)
- Organising Committee member for Short Term Course on Practical Insights into Process Control rganized by Department of Instrumentation and Control Engineering.
- Resource Person for Short Term Course on Practical Insights into Process Control organized by Department of Instrumentation and Control Engineering.
- Organising Committee member for the Faculty Development Program on Navigating the Landscape of IPR.
- Trained Faculty and students in a One-week Short-term course on Power System Restructuring and Renewable Energy Integration.

### HLS ASIA Limited | Sept 2020 – Nov 2020

- Trainee Technical Professional, responsible for LOGIQ A/B Panel Setup in Cased hole and Open hole Wireline logging.
- Conducted Testing, Commissioning, and Maintenance of Wireline logging panels, ensuring preventive measures for tool testing and Health and Safety compliance.
- Contributed to Unit Design for Offshore and Onshore wireline logging, involving terminal design, circuit design, and routing for mini power systems.
- Played a crucial role in testing, debugging, and resolving errors in various panels used in open-hole or cased-hole Wireline logging operations.

### Larsen and Toubro Construction | June 2015 - Jan 2016

- Served as a Graduate Engineer Trainee, contributing to the 58 MLD Wastewater treatment plant project on River Ramganga, Moradabad.

- Supervised the Testing and Commissioning of transformers, feeders, Electrical Machines, and Drives, adhering to industrial standards and safety protocols.
- Executed Testing and Commissioning of PLC and SCADA systems for the wastewater treatment plant.
- Controlled equipment and system operations, adapting technology to meet user needs.
- Conducted tests and inspections to assess the quality and performance of products, services, or processes.

## INTERNSHIP, SHORT-TERM COURSE AND WORKSHOP

- Electric Vehicle design internship for in-depth knowledge of converters, electrical drives and battery management systems.
- Participation in the Online Workshop on “**Robotic Systems Control and Instrumentation**” by NIT Tiruchirappalli, from Oct 27-31, 2023.
- Completed “**Unpacking E-Mobility Technologies for India**” online course (Nov 20-24, 2021) by M. N. National Institute of Technology Allahabad under the Ministry of Education’s SPARC initiative for project “E-Mobility: An Electricity Grid Perspective (P1542).”
- ‘**Recent Advancement in Power, Control and Energy**’ at National Institute of Technology Meghalaya in the year 2014.
- Industrial Training from Robosapiens Technology Pvt. Ltd. on ‘**QUADCOPTER DESIGNING**’ in the year 2014.
- ‘**Industrial and Commercial Power System Analysis: Recommendation Practices**’ at Motilal National Institute of Technology Allahabad in 2013.
- Summer Internship (B. Tech III year - 2014) at **Delhi Metro Rail Corporation**, focused on "Traction and SCADA" under the guidance of Mr. Subodh Pandey (JGM), Mr. Anand Kumar (Manager Traction), and Mr. Jitendra Kumar (Manager SCADA).
- Vocational internship (B. Tech II year - 2013) at **National Thermal Power Corporation (NTPC), Unchhahar**, involving hands-on experience in Alternator, Boiler, Switchgear, Cooling tower, Ash Handling Plant, Coal Handling Plant, etc. Explored Pneumatic Instrumentation and Control System under the mentorship of Mr. A.K. Sharma and Mr. O. P. Solanki.

## PATENTS

- A Converter and method thereof for topology selection of Z-Source DC-DC Single Input Dual Output (SIDO). (Indian Patent: 202311053700) (**Granted**)
- System based on Phase-Short and Phase-Open DFIM-DC topology for simplified control with reduced converter. (Indian Patent: 202311063017) (**Published**)
- Next Gen Topology Optimized Non-Isolated Multiport Hybrid Converter: A Robust Solution for High Gain EV Chargers (US Patent: UOS- 088/2023) (**Filed**)

## PROJECTS

- “**Renewable Energy System (RES) based Multiport Bidirectional Converter (MBC) for Isolated Applications**” under the guidance of Professor Dr. Dheeraj Joshi, which is funded by the Deputyship for Research & Innovation, Ministry of Education, Saudi Arabia through the project number **RI-44-0274** for the year **2022-2024**.
- “**Design, Analysis and Control of Non-Linear Controller Based Second Order Flyback Converter**” under the guidance of Professor Dr. Dheeraj Joshi for the year **2018-2020**.
- “**Batteries charger using TRIAC firing angle control**” under the guidance of Dr. Atanu Banerjee for the year **2014-2015**.
- “**Overvoltage and Under voltage Protection**” to protect electrical/electronic equipment from severe damage through voltage fluctuation under Assistant Professor Mr. Sanjoy Debbarma’s guidance in **2013-2014**.

## JOURNALS

- D. Joshi and A. Gupta, **Controller Design and Modelling of a Single-Switch Fifth-Order High Voltage Gain Converter with Parasitics for Electric Vehicle Charging**, in IEEE Transactions on Transportation Electrification, doi: 10.1109/TTE.2025.3553705
- Gupta, A. and Joshi, D. (2024), **Mathematical Analysis and Topology Derivation for a Family of Novel Dual Output High-Voltage Gain Z-Source Converter for Renewable Energy Application**. Int J Circ Theor Appl. <https://doi.org/10.1002/cta.4369>
- Gupta A, Joshi D. **Mathematical modeling and stress-aware stability analysis of a nonideal multiport Single Inductor DC–DC converter for renewable energy**. Int J Circ Theor Appl. 2024; 1-32. doi:10.1002/cta.4234.
- Urooj, S., Joshi, D., Gupta, A. et al. **Derivation Analysis and Control of Multiport Flyback Converter with Lyapunov Function-Based Controller in Renewable Energy Systems Considering Circuit Parasitics**. Arab J Sci Eng (2024). <https://doi.org/10.1007/s13369-024-09493-6>

## PUBLICATIONS

- P. S. Shandilya, Ashutosh, D. Joshi and N. Kumar, "**Modelling of PID-based Closed-Loop Voltage Mode Control for Cuk Converter with Circuit Parasitics**," 2024 IEEE 4th International Conference on Sustainable Energy and Future Electric Transportation (SEFET), Hyderabad, India, 2024, pp. 1-5, doi: 10.1109/SEFET61574.2024.10718041.
- K. Gaurav, S. Upadhyaya, Ashutosh and D. Joshi, "**Enhanced Gain Double - Output Boost/Buck DC-DC Converter**," 2024 15th International Conference on Computing Communication and Networking Technologies (ICCCNT), Kamand, India, 2024, pp. 1-6, doi: 10.1109/ICCCNT61001.2024.10725884.
- A. Gupta and D. Joshi, "**Analysis and Modeling of Induction Motor with Advanced Capacitor Braking Using Adaptive Neural Network**," 2023 9th IEEE India International Conference on Power Electronics (IICPE), SONIPAT, India, 2023, pp. 1-6, doi: 10.1109/IICPE60303.2023.10474911.
- T. Gupta, A. Gupta, D. Joshi and M. A. Mallick, "**Stability Analysis and Optimization of a Parasitic Buck Converter Using Leverrier's Algorithm and PI Controller**," 2023 9th IEEE India International Conference on Power Electronics (IICPE), SONIPAT, India, 2023, pp. 1-6, doi: 10.1109/IICPE60303.2023.10474949.
- A. Gupta and D. Joshi, "**Electric Vehicle Battery Charging Utilizing High Gain Luo Converter with Power Factor Correction**," 2023 3rd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), Patna, India, 2023, pp. 1-6, doi: 10.1109/ICEFEET59656.2023.10452201.
- T. Gupta, A. Gupta and D. Joshi, "**Stability Analysis and Control of Non-Ideal SEPIC Converters Using Leverrier's Algorithm and PI Controller Considering Parasitic Elements**," 2023 3rd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), Patna, India, 2023, pp. 1-6, doi: 10.1109/ICEFEET59656.2023.10452208.
- P. S. Shandilya, A. Gupta and D. Joshi, "**Voltage and Current Regulation in Cuk DC-DC Converters having Enhanced Closed-Loop Control using PID Controller**," 2023 11th National Power Electronics Conference (NPEC), Guwahati, India, 2023, pp. 1-6, doi: 10.1109/NPEC57805.2023.10385025.
- A. Gupta, K. Rana and D. Joshi, "**Design and Analysis of Multioutput Flyback Converter under Continuous and Discontinuous Conduction mode using PI Controller**", 2020 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS), Bhopal, India, 2020, pp. 1-5, doi: 10.1109/SCEECS48394.2020.201.
- A. Gupta, K. Rana and D. Joshi, "**Design and Analysis of Multioutput Flyback Converter under Continuous and Discontinuous Conduction mode using PID Controller**," 2020 First IEEE International Conference on Measurement, Instrumentation, Control and Automation (ICMICA), Kurukshetra, India, 2020, pp. 1-5, doi: 10.1109/ICMICA48462.2020.9242853.
- Chapter in Book: Gupta, A., Joshi, D. (2022). **Comparative Analysis of Nonlinear SMC Controller with Linear PID Controller for Flyback Converter**. In: Priyadarshi, N., Bhoi, A.K., Bansal, R.C., Kalam, A. (eds) DC—DC Converters for Future Renewable Energy Systems. Energy Systems in Electrical Engineering. Springer, Singapore. [https://doi.org/10.1007/978-981-16-4388-0\\_4](https://doi.org/10.1007/978-981-16-4388-0_4)

## AWARDS AND ACHIEVEMENTS

- Best Paper at ICEFEET-2023 IEEE Conference for "Electric Vehicle Battery Charging Utilizing High Gain Luo Converter with Power Factor Correction" presented in the "Power Electronics and Drive" session, organized by NIT Patna.
- Best Paper at I-TechSci-2021 Conference for "Comparative Analysis of Nonlinear SMC Controller with Linear PI Controller for Flyback Converter with Hardware Interpretation" presented in the "International Conference on Influence and Usability of Contemporary Science and Technology Tools for Society" session, organized by The ICFAI University, Raipur.

## POSITION OF RESPONSIBILITY

- Class Representative for Electrical and Electronics Dept. for three continuous years, i.e., 2012 to 2015.
- College Secretary for Fine Arts and Photography for the year 2013 - 2014.
- An active member of college Robotics and Technical Society.

## TECHNICAL SKILLS

|                                                  |                                                                                                              |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Engineering Software Programming Language</b> | MATLAB, Multisim, E-Tap, PowerSim, EayEDA, Code Composer Studio<br>C/C++, Java and Assembly Language, Python |
| <b>Other/s</b>                                   | Adobe Photoshop, Advance MS Office, Adobe Premier Pro, AVR Studio.                                           |

## CO-CURRICULAR ACTIVITIES

- Winner of inter-college Carrom Tournament held at our institution.
- A certificate of merit was awarded to All India Rank 292 in the 9th National Cyber Olympiad in 2010.
- A certificate of merit was awarded to All India Rank 404 in the 9th National Science Olympiad in 2010.
- School-wise, top 10% scorers in National Mathematics Talent Competition 2009.

## PERSONAL INFORMATION

|                                  |                                                                          |
|----------------------------------|--------------------------------------------------------------------------|
| <b>Father's Name:</b>            | Mr. Ranjeet Prasad Gupta                                                 |
| <b>Mother's Name:</b>            | Mrs. Mamta Gupta                                                         |
| <b>Date of Birth:</b>            | 11 <sup>th</sup> of February 1993                                        |
| <b>Sex &amp; Marital Status:</b> | Male & Married                                                           |
| <b>Nationality:</b>              | Indian                                                                   |
| <b>Current Address:</b>          | 203 Fourth Floor, Bhera Enclave, Paschim Vihar, Rohini, New Delhi-110087 |
| <b>Permanent Address:</b>        | 41 Shivaji Enclave C Block Indiranagar Lucknow-226016, U.P.              |