

# Dr. Arjun Tyagi

Assistant Professor,  
School of Electrical Engineering,  
Shri Mata Vaishno Devi University, Katra.  
Email: [arjun.tyagi@smvdu.ac.in](mailto:arjun.tyagi@smvdu.ac.in)  
Homepage: <https://sites.google.com/site/iitdarjuntyagi/>



## OTHER AFFILIATIONS

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- Member, IEEE, USA.
- IEEE Power and Energy Society.
- IEEE Young Professionals.
- Smart Cities Community; Smart Grid Community.
- Transportation Electrification Community.

## AREAS OF INTEREST

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- **Primary:** Electric Power Distribution System Analysis, Operation and Optimization, Handling Uncertainties in Power System, Distributed Power Generation, Renewable Power Generation.
- **Secondary:** Modelling and Optimization of Power Systems, Electric Vehicles, Smart Electric Distribution System, Demand Side Management

## EDUCATIONAL QUALIFICATION

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- **Ph. D. (Full Time)**  
in Electric Distribution Systems  
Indian Institute of Technology Delhi, New Delhi.
- **M. Tech.** in Power System with **Gold Medal**.
- **B. Tech.** in Electrical and Electronics Engineering with **Honours**.

## EXPERIENCE

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- **Research Associate**, at IIT Delhi, New Delhi, India (Duration: 6 months).

## AWARDS & ACHIEVEMENTS

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- Received **Gold Medal** in M. Tech. and stood **First** in batch.
- Received B. Tech. degree with **Honours** and stood at **second position** in class.
- Recipient of MHRD, Govt. of India scholarship for the Ph.D. duration.
- Graduate Aptitude Test in Engineering (**GATE**) qualified in Electrical Engineering.
- **First** position in the Matric examination in class.
- Received **First position** in *Bhartiya Sanskriti Gyan Pariksha* (2000), Shantikunj, Haridwar.
- Received a certification from NIIT for Programming in “C”.

## RESEARCH WORK/PROJECTS

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### *On Going Research Work*

- Distribution System Reconfiguration with Clustering Based Demand Response.
- Electric Vehicles in Smart Distribution Systems.

### *Completed*

- Performance Improvement of Modern Distribution Systems (July 2013 to December 2017) (**Ph. D. Thesis**).

- Modeling, Simulation and Performance Analysis of Micro-Turbine Generation System (July 2012 to June 2013).
- Transmission Network Expansion Planning in a Deregulated Environment (January-June, 2012).

## LABORATORY WORK

I was involved in the development of Electrical Power and Renewable Energy Systems Laboratory, CES, IIT Delhi, India; and established following facilities:

- Solar emulator
- Wind emulator
- Solar PV system
- Load flow studies
- Fault analysis

## RESEARCH PUBLICATIONS

- Arjun Tyagi, Ashu Verma and P. R. Bijwe, "A Purchase Cost Based Reconfiguration of Distribution System with Variability in Loads and Renewable Generation," *IEEE Transactions on Sustainable Energy*, (communicated).
- Arjun Tyagi, Ashu Verma and P. R. Bijwe, "Reconfiguration for Loadability Limit Enhancement of Distribution Systems," *IET Generation, Transmission & Distribution*, vol. 12, no. 1, pp. 88-93, February 2018. DOI: [10.1049/iet-gtd.2017.0090](https://doi.org/10.1049/iet-gtd.2017.0090)
- Arjun Tyagi, Ashu Verma and P. R. Bijwe, "Loadability Assessment and Enhancement in Unbalanced Distribution Systems," *IEEE CSEE Journal of Power and Energy Systems*, (accepted).
- Arjun Tyagi, Ashu Verma and Lokesh K. Panwar, "Optimal Placement and Sizing of Distributed Generation in an Unbalance Distribution System using Gray Wolf Optimization Method," *International Journal of Power and Energy Conversion*, (in press). DOI: [10.1504/IJPEC.2018.10009642](https://doi.org/10.1504/IJPEC.2018.10009642)
- Ashu Verma, Arjun Tyagi and Ram Krishan, "Optimal Allocation of Distributed Photovoltaic Generation on Electrical Distribution System under Uncertainties," *Journal of Electrical Engineering & Technology*, vol. 12, pp. 1921-718, 2017. DOI: [10.5370/JEET.2017.12.4.1386](https://doi.org/10.5370/JEET.2017.12.4.1386)
- Krishan Kumar, M. A. Ansari and Arjun Tyagi, "An efficient technique for power management in hybrid solar PV and fuel cell system," *Taylor & Francis Online: Smart Science (TSMA)*, July, 2018. DOI: [10.1080/23080477.2018.1494974](https://doi.org/10.1080/23080477.2018.1494974)
- Arjun Tyagi and Ashu Verma, "Optimal DG Allocation with Proper Utilization of Reactive Power Capability of PV Inverter in Distribution Systems," *IEEE NANOIM 2017*, Greater Noida, India, 16-17 November 2017.
- Arjun Tyagi, Ashu Verma and P. R. Bijwe, "Reconfiguration of Balanced and Unbalanced Distribution Systems for Cost Minimization," *IEEE TENCON 2017*, Penang, Malaysia, 5-8 November 2017.
- Arjun Tyagi, Ashu Verma and Soumya Das, "Combined Optimal DG Placement and Reactive Power Management in Unbalanced Distribution Systems," *7<sup>th</sup> IEEE Power India International Conference*, Bikaner, India, 25-27 November 2016.
- Arjun Tyagi and Ashu Verma, "Comparative Study of IHS and BF-DE Algorithm for Optimal DG Placement," *IEEE International Conference on Energy Efficient Technology for Sustainability*, Nagercoil, India, 7-8 April 2016.
- Arjun Tyagi, Ashu Verma and Abhinav Saxena, "Optimal Economic Dispatch Considering Wind Energy Conversion Systems Using Gray Coded Genetic Algorithm," *12<sup>th</sup> IEEE India International Conference (INDICON)*, New Delhi, India, 17-20 Dec. 2015 (paper selected for **IEEE Transactions on Industry Applications**).
- Arjun Tyagi and Yogesh K. Chauhan, "A Prospective on Modeling and Performance Analysis of Micro-turbine Generation System," *IEEE international conference on energy efficient technology for sustainability*, Nagercoil, India, 10-12 April 2013.
- Krishan Kumar, **Arjun Tyagi** and M. A. Ansari, "Analysis of Different Configuration of Multi-Pulse Converter for Speed Drive System," *National Conference on recent developments in control, automation and power engineering (RDCAPE-2013)*, Noida, India, 21-22 February 2013.
- Arjun Tyagi, "The Exchange of Energy from Waste to Electricity," *iTEC 2012*, GBU, Greater Noida, India, 17-18 March 2012.
- Krishan Kumar, M. A. Ansari and **Arjun Tyagi** "Efficient power management of different renewable energy based DERs in microgrid system," *IEEE NANOIM 2017*, Greater Noida, India, 16-17 November 2017.

## Exhibitions

- Arjun Tyagi, "Adequacy Analysis of Distribution System with Significant Renewable Distributed Energy Resources," *Industry Day 2017*, Indian Institute of Technology Delhi, India, 23 September 2017.
- Arjun Tyagi, "Optimal Reconfiguration of Balanced and Unbalanced Distribution System," *Open House 2015*, Indian Institute of Technology Delhi, India, 18 April 2015.
- Arjun Tyagi, "Optimal Allocation of Distributed Generation in Distribution Systems," *Open House 2014*, Indian Institute of Technology Delhi, India, 19 April 2014.

- Arjun Tyagi, “Working Model of Over Current Relay: Use of the Over Current Relay to Avoid Overloading at Sub-Stations,” *Tech Fest '09*, VCE, India, 2009.

## **ADMINISTRATIVE RESPONSABILITIES**

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- Organizer, Continuing Education Programme (under **MHRD, Govt. of India** approved **GIAN**) at IIT Delhi, on 12-16<sup>th</sup> Feb. 2018.
- Organizer, IEEE PES WIP Annual Conference 2017 at India Habitat Centre, Delhi, 11-12<sup>th</sup> March 2017.
- Organizer, National Renewable Energy Conclave 2017 at IIT Delhi, with Tryst' 17 on 22<sup>nd</sup> Feb. 2017.
- Coordinator, Emerging Mathematical Methods, Models & Algorithms for Science & Technology (sponsored by **DRDO, DST and CSIR**) at Gautam Buddha University, Gr. Noida, 15-16<sup>th</sup> Dec. 2012.
- **Ph. D. Representative**, in the Energy Forum, IIT Delhi.
- Core team coordinator, in Open House 2015 and 2016 at IIT Delhi.

## **WORKSHOP & SHORT-TERM COURSE ATTENDED**

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### *One Week*

- Continuing Education Programme (under **GIAN**) on **Remote Sensing of Soil Moisture and its Geophysical Applications**, during 12-16 February, 2018 at IIT Delhi.
- IEEE CIS Summer School on **Computational Intelligence: Tools Techniques for Smart Grid Solutions**, during 28-31 December, 2017 at IIT Delhi.
- Short term training programme on **Application of Techniques/Tools in Engineering**, during 9-14 October, 2017 at GBU, Greater Noida.
- Short term course on **Advances in Soft Computing Technology for Solving Engineering Problems**, during 17-21 July, 2017 at NSIT, Delhi.
- **Young Scientists' Conference** (India International Science Festival) conducted by Ministry of Science & Technology, India, 4-8 Dec. 2015 at IIT Delhi, New Delhi.

### *Others*

- Workshop on **Entrepreneurship Development Program (EDP)**, 18<sup>th</sup> Jan, 2012, by National Small Industries Corporation Ltd.
- **Training program of MATLAB and MATHEMATICA** sponsored by CSIR, DRDO, DST and GBU on 14<sup>th</sup> Dec. 2012 at Gautam Buddha University.
- **Emerging Mathematical Methods, Models & Algorithms for Science & Technology**, 15-16<sup>th</sup> Dec. 2012 at Gautam Buddha University.
- **IEEE Authorship Workshop** held on 11<sup>th</sup> Aug. 2014 at IIT Delhi.
- **International Innovation, Sustainability & Entrepreneurship Summit**, 26<sup>th</sup> Sep. 2014.
- **Policy Workshop** by Vision India Foundation on 6<sup>th</sup> Nov. 2014.
- **Engineering Education & Research Seminar** conducted by National Instruments on 23<sup>rd</sup> Sep. 2016.
- **Shine Rural India with Renewable Technology** conducted by UN Information Centre and IEEE PES on 13<sup>th</sup> Dec. 2016.
- **National Renewable Energy Conclave** at IIT Delhi, with Energy Society IIT Delhi and Tryst' 17 on 22<sup>nd</sup> Feb. 2017.
- **The Expert Talk on The Future Train E-Mobility and Renewable Energy Resources** conducted by ISIE India at IIT Delhi on 28<sup>th</sup> July 2018.