

SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT-395007

(DEPARTMENT OF ELECTRICAL ENGINEERING)

1 **Name** **DR. SABHA RAJ ARYA**

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Department of Electrical Engineering,
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4 **Date of birth** **03/10/1979**

5 **Research Area**

- **Power Quality - Custom Power Devices**
- **Power Electronic Converters for Power factor corrections**
- **Electric Vehicles Technology**
- **Optimization Algorithms**
- **Induction Motor and Synchronous Motor Drives**
- **DC/DC Converters and Soft Switching Techniques**
- **Application of PLLs, Soft Computing and Adaptive Algorithms**
- **Distributed Power Generation and Smart Grid Technology**

6 **Academic Qualifications**

Degree	Year	Specialization	Name of Board/Institute
10 th Class	1994	-	M.P. Boards (1st Rank in School)
B. E./B. Tech.	2002	Electrical Engineering	Govt. Engg. College Jabalpur (M.P.)
M.E./M. Tech.	2004	Power Electronics and ASIC design	MNNIT Allahabad
Ph. D.	2010-2013	Electrical Power Quality	EED, I.I.T. Delhi

7 Recognitions received

Sr. No.	Name of award	Name of society/institute	Year
(i)	Young Engineer Award-2014	Indian National Academy of Engineering (INAE)- Delhi	2014
(ii)	POSOCO Power System Award (PPSA-2014)	Power System Operation Corporation (POSOCO) –A subsidiary of Power Grid Corporation of India Ltd (POWERGRID)-Delhi.	2014
(iii)	Amit Garg Memorial Research Award-2014	From Indian Institute of Technology (IIT) Delhi for the High Impact Publication in a quality journal during the session 2013-2014	2014
(iv)	IEEE-Senior Member	IEEE Industry Applications Society	2015
(v)	Associate Editor	IET Renewable Power Generation	2018
(vi)	Tata Rao Prize-2023	from The Institution of Engineers (India) for Research Work/Paper.	2023
(vii)	Dr. Sabha Raj Arya is listed in the world's top 2% of most influential scientists from all areas in the "citation impact during the year 2022, 2023 and 2024" published by researchers from Stanford University of USA and Elsevier of the Netherlands.		2022, 2023, 2024
(viii)	Dr. Sabha Raj Arya is listed in the world's top 2% of most influential scientists from all areas in the "citation impact during the year 2021" published by researchers from Stanford University of USA and Elsevier of the Netherlands.		2021
(ix)	Best Paper Award on "Chirisavada Jagadeesh, Sabha Raj Arya, Ashutosh k. Giri and Papia Ray, Variable Step Size ZALMS with Optimized PI for Power Quality in Wind Integrated PMSG System," Fourth IEEE International Conference on Power, Control and Computing Technologies (ICPC2T) - 2025 held at NIT Raipur, 20 TO 22 Jan 2025.		2025
(x)	Best Paper Award on "Talada Appala Naidu, Sabha Raj Arya, Rakesh Maurya and Ahmed Al-Durra "Control of Supply Voltage Power Quality Issues using DVR through Forward-Backward LMS" in Proc. 2022 IEEE 2nd International Conference on Sustainable Energy and Future Electric Transportation, GRIET, Hyderabad, August 4-6, 2022, pp. 1-8 with cash price of Rs.5000.00.		2022
(xi)	Best Paper Award on "Jayadeep Srikakolapu, Sabha Raj Arya and		2020

	Rakesh Maurya, " DSTATCOM using Limit Cycle Oscillator FLL with Optimized Gains of Voltage Error Controllers," in Proc. 1st International Conference on Innovation in Electrical Power Engineering, Communication, and Computing Technology) for LNEE, Springer, Bhubaneswar, 13th-14th December 2019, pp.1-13	
(xii)	Best Paper Award on "Talada Appala Naidu, Sabha Raj Arya , and Rakesh Maurya, "Control of DVR using Variable Step-size Griffith's LMS with Optimized tuning of Proportional Integrator Gains" in Proc. International conference on power electronics applications and technology in present energy scenario (PETPES-2019) organized by Electrical and Electronics Engineering Department, NITK Surathkal, 29-31 August 2019.	2019
(xiii)	Guest Editor: Special Issue on "Control and Power Quality in Renewable Energy Systems" in International Transactions on Electrical Energy Systems , Wiley (Impact factor:1.692) from April 2020 to Dec 2020.	2020
(xiv)	Guest Editor: Special Issue on "Energy Storage-Design, Control, and Application in Modern Power Systems" in Journal of Electrical Engineering, Springer (SCI, I.F: 1.2) from 8th July 2020 to 30 March 2021.	2020
(xv)	Guest Editors: Special Issue On "Power Electronics Applications in Smart Distribution Grids with Renewable Energy Sources" in International Journal of Emerging Electric Power Systems-IJEEPS, (Scopus) from January 15, 2018 to August 2018.	2018
(xvi)	Guest Editor: Special Issue on "Green Energy Systems" in Journal of Green Engineering, (Scopus) , from 15th April, 2017 to end of June 2017.	2017

8 Administrative duties

(1) Associate Dean (Planning and Development)-From August 2023 up to present.

(2) Institute Faculty in Charge – Electrical and communication system- From Feb. 2022 to Feb. 2024

(3) Chief Hostel warden/Hostel Warden- June 2014 to March 2017 and 12 March 2021 to 13 March 2023.

(4) Hostel Warden- Dec. 2013 upto June 2014, Dec. 2008 upto July 2009.

9 Details of Research and Development Projects

(A) Research project **(Total Amount :113.94 Lakhs)**

Sr. No.	Name of Project	Funding Agency	Durations
(i)	Development of Adaptive control algorithm for shunt compensator (Minor Project) (Role: Principal Investigator)	Gujarat Council on Science and Technology (GUJCOST) Gandhinagar (Gj.) -382011 (Completed)	Sanctioned for 2 Year (from: March 2016) Amount :1.94 Lakhs (Completed)
(ii)	Development of Control Algorithms for Shunt and Series connected Custom Power Devices (Role: Principal Investigator)	Science and Engineering Research Board -New Delhi (Under Extra Mural Research Funding Scheme) (Completed)	Sanctioned for 3 Year (from June :2016) Amount : 44 Lakhs (Completed)
(iii)	Control of wind solar micro grid power generation in isolated system (Role: Co-Principal Investigator)	Research Promotion under Technical Education-STEM (Project No/CTE No: 2021ELE001) Gandhinagar (Gujarat)	Sanctioned for 3 Year (from April :2021) Amount : 25 Lakhs (under progress)
(iv)	Intelligent Control for Active Shunt Compensator in Wind based Renewable Energy System for Remote Power Applications (Role: Principal Investigator)	Gujarat Council on Science and Technology, Department of Science and Technology, Govt. of Gujarat, Gandhinagar (Project No./GUJCOST/STI/2021-2022/3874, Dated 31/03/2022))	Sanctioned for 3 Year (from April :2022) Amount: 43 Lakhs (under progress)

(B) Consultancy Project **(Total Amount: 36.59 Lakhs)**

- (i) **Consultancy project** on "Electrical Safety Audit (with Thermography) for your Buildings (Office and Residential Quarters) at NABARD, Ahmedabad,2022.
Amount (in Rs.)=**2,24,200.00- Completed**
(Role: **Dr. Sabha Raj Arya, Co- Principal Investigator**)

- (ii) **Consultancy project** on "Electrical- Energy Audit Consultancy services in Veer Narmad south Gujarat university (University campus)-Surat (Gujarat), 2022.
Amount (in Rs.) = **7,08,000.00- Completed**
(Role: Dr. Sabha Raj Arya, Co- Principal Investigator)
- (iii) **Consultancy project** from M/s GEO Designs & Research (P) limited (GEO Test House), B-10, Krishana insuartial Esate, Gorwa Esatae, Vadodara-390016 (Gujarat) regarding work for "Power Quality Audit (Energy Audit) for rationalization of transformers at Air Force Station Jodhpur under GE (AF) Jodhpur, 2022.
Amount (in Rs.)= **5,31,000.00 – Completed**
(Role: Dr. Sabha Raj Arya, Co- Principal Investigator)
- (iv) **Consultancy project** for the work of SETC of electro mechanical for arrangement /replacement of existing equipment at Puna-Simada and Magob Sarthana sewage pumping station under Surat Municipal Corporation, 2018.
Amount (in Rs.)=**3,80,963.00- Completed**
(Role: Dr. Sabha Raj Arya, Co- Principal Investigator)
- (v) **Consultancy project** for checking and verification of design and drawing of Electrical and Automation –(PLC/SCADA) –Order No. SMCC/PO/22-23/135, Reference: 162, Dated 20/08/2022.
Amount (in Rs.)=**92,040.00 -Under progress**
(Role: Dr. Sabha Raj Arya, Co- Principal Investigator)
- (vi) **Consultancy project** for checking and verification of design and drawing of Electrical and Automation –(PLC/SCADA) –Order No. KCLPL/VO/22-23/108, Reference: 122, Dated 20/08/2022.
Amount (in Rs.)=**92,040.00 -Under progress**
(Role: Dr. Sabha Raj Arya, Co- Principal Investigator)
- (vii) **Consultancy project** for checking and verification of design and drawing of Electrical and Automation –(PLC/SCADA) –Order No. VPRPL /VO/22-23/798, Dated 20/08/2022
Amount (in Rs.)=**92,040.00 -Under progress**
(Role: Dr. Sabha Raj Arya, Co- Principal Investigator)

- (viii) **Consultancy project** for Providing, Installation, and Maintaining cable monitoring and bridges lighting system on “Pandit Dindayal Upadhaya” Cable Bridge under Surat Municipal Corporation Surat, 2022.

Amount (in Rs.)= **14,16,000.00 -Under progress**

(Role: Dr. Sabha Raj Arya, Co- Principal Investigator)

- (ix) **Consultancy project inspection** for retrofitting of existing approx. 27,950/- numbers of conventional luminaries with LED luminaries and feeder pillars with CCMS under Surat Municipal Corporation, 2021.

Amount (in Rs.)= **1,24,519.00- Under progress**

(Role: Dr. Sabha Raj Arya, Co- Principal Investigator)

10. Publication of Books (03)

(i) **Book Publication** 2020-2022 on **“Distributed Energy System: Modelling and Control”, CRC Press, USA, (in Publication Press)**, Number of chapters :12, author’s by Ashutosh K Giri, Government Engineering College Bharuch, **Sabha Raj Arya**, Sardar Vallabhbhai National Institute of Technology, Surat and Dmitri Vinnikov, Tallinn University of Technology, Estonia.

(ii) **Book Publication** 2021-2023 on **"Power Quality: Infrastructures and Control", Springer Publication (in Publication Press)**, Number of chapters :14, author’s by Ashutosh K Giri, Government Engineering College Bharuch, **Sabha Raj Arya**, Sardar Vallabhbhai National Institute of Technology, Surat, Josep M Guerrero, Aalborg University, Denmark and Shailendra Kumar Dwivedi, M.A.N.I.T Bhopal.

(iii) **Book Publication** 2022-2023 on **"Custom Power Devices for Efficient Distributed Energy Systems", ELSEVIER Publication**, author’s by Ahmed Al-Durra, Electrical Engineering & Computer Science Department, Khalifa University, UAE, **Sabha Raj Arya**, Department of Electrical Engineering, Sardar Vallabhbhai National Institute of Technology, Surat, Gujarat and Ashutosh K Giri, Electrical Engineering Department, Government Engineering College, Bharuch, Gujarat.

11 Positions held (from 2004 to present)

Sr. No.	Name of Department/ Institute	Positions	Duration	Nature of work
(i)	(Electrical Engineering Department) Kalinga Institute of Industrial Technology-Patia (Deemed university)- Bhubaneswar-751024	Lecture	27th July 2004 to 27th Nov. 2006	Teaching and Research (Supervisor for M.Tech. and B.Tech. students)
(ii)	(Electrical Engineering Department) S.V. National Institute of Technology, Dumas Road, Ichchhanath, Surat-395007	Assistant Professor	1st Dec.2006 to 27th January 2019	Teaching and Research (Supervisor for Ph. D, M.Tech. and B.Tech. students)
(iii)	(Electrical Engineering Department) S.V. National Institute of Technology, Dumas Road, Ichchhanath, Surat-395007	Associate Professor	28th January 2019	Teaching and Research (Supervisor for Ph. D, M.Tech. and B.Tech. students)
(iv)	(Electrical Engineering Department) S.V. National Institute of Technology, Dumas Road, Ichchhanath, Surat-395007	Professor	21th Dec. 2023 to continue	Teaching and Research (Supervisor for Ph. D, M.Tech. and B.Tech. students)

12 Membership of professional bodies

Sr. No.	Name of society	From	Grade /Member ship number
(i)	Institute of Electrical and Electronics Engineers (IEEE)	2012 to continuous	Senior Member (2015) /92074574
(ii)	The Institution of Engineers (INDIA)	2010 to continuous	Associate member /AM0984518
(iii)	The System society of India	2008 to continuous	Member/ LM28471
(iv)	The Institution of Electronics and Telecommunication Engineers (IETE)	January 2016 to continuous	Member/LM 500011

13 Short term courses /Seminars Organized at SVNIT (work as Coordinator and Delivered Expert Lecture)

- 1) One-Week Short-Term Training Program on Emerging Trends in Electric Vehicles (EVs) and Renewables (ETER- 2022), 12th December to 16th December 2022
- 2) Emerging Technologies in Distribution System and Distributed Generation, 27 September to 1st October, 2021
- 3) Advancement in Electric Vehicle Technology: A step towards Development of sustainable Transportation System 18th February to 22nd February 2021
- 4) Power Electronics for Electrical Vehicles & Energy Systems (PEEVES-2020), 28th September to 03rd October 2020 jointly organized by (MMMUT & SVNIT), financially sponsored by TEQIP-III, MMMUT, Gorakhpur.
- 5) Application and Control of Power Electronic Converters for Sustainable Living, 18-22 September, 2020
- 6) Control of Power Electronic converters for on Grid and off Grid systems (online mode), 3rd August 2020 to 07th August 2020.
- 7) Power Electronics for Distributed Generation and Electrical Drives 2nd March 2020 to 06th March -2020.
- 8) Organized on week short term course on smart energy systems: operational and control (SESOC-2019), Dec 2019, at MMMUT–Gorakhpur (worked as course coordinator)
- 9) Expert talk from Prof. (Dr.) D.P. Kothari , Ex head and Professor, Centre for energy studies, IIT Delhi, in the area of power system and power electronics, (06 May 2019)
- 10) Power Electronics For Distribution System and Electric Drives, June-July 2018
- 11) Power Quality and Distributed Power Generation, Dec. 2017
- 12) Design and Control of Power Electronic Circuits using OPAL- Real Time Simulators- March 2017
- 13) Power conditioning and Distributed Power Generation-Dec.-2016
- 14) Power Electronic: Circuits and Control-Dec.2015
- 15) Power Electronics: System and Control –Dec. 2014
- 16) Power Filter Technology and Control- June 2014
- 17) Advance Control System Education – Feb.2014

14 Complete lists of refereed Journal papers and papers presented in Conferences

(A) Summary of Publication in International/National Journals

IEEE Transactions	IET-UK	Elsevier	Other International Journals (SCI/SCOPUS)	Total
58		07	69	134

(B) Summary of Publication in International/National conferences and communicated papers

International / National conferences	Books	Book Chapters	Communicated Papers in Journals/ conferences	Total
66	03	05	07	81

(i) Publications in IEEE Transactions /IET Journals =58

- [1] Chinmay Deshpande, Rajasekharareddy Chilipi and Sabha Raj Arya, "Frequency adaptive enhanced reduced-order generalized integrator control for operation of DVR," *Accepted for Publication in IEEE Transactions on Industry Applications*, April 2025.
- [2] P. Mahesh and S. R. Arya, "Randomized self-structuring adaptive neuro-fuzzy based Induction Motor Drives with Optimized FOPI Gains," *Accepted for Publication in IEEE-CPSS Transactions on Power Electronics and Applications*, vol. 9, no. 4, pp. 465-475, December 2024.
- [3] Ganesh Kumar Budumuru, Papia Ray, Prashant Kumar, Sabha Raj Arya, "Power quality enhancement using AZQLMS and fractional order PID-based control through dynamic voltage restorer," *Accepted for publication IEEE-CPSS Transactions on Power Electronics and Applications*.
(doi: 10.24295/CPSSTPEA.2025.00020)
- [4] P. Kumar, S. R. Arya and P. Ray, "Dynamic Voltage Restorer with Integration of Least Mean Square and Optimal Type-2 Fuzzy," *Accepted for publication IEEE Journal of Emerging and Selected Topics in Power Electronics*.
(doi: 10.1109/JESTPE.2025.3572004)
- [5] P. Mahesh, S. R. Arya and P. Ray, "Adaptive parameter measurement in sensorless

- speed control of induction motor for vehicle loads," **IEEE Transactions on Instrumentation and Measurement**, vol. 74, pp. 1-10, 2025.
- [6] **S. R. Arya**, P. Mahesh and P. Ray, "Optimal ELMAN recurrent neural networks-based Induction Motor Drives with Estimated Machine Parameters," **IEEE Transactions on Power Electronics**, vol. 40, no. 6, pp. 8480-8489, June 2025.
- [7] Prashant Kumar, **Sabha Raj Arya**, Khyati D Mistry and Papia Ray, "Performance of DVR Using Diffusion Norm Penalized LMS Fourth Adaption Algorithm With Optimized FOPID Gains," **IEEE Transactions on Automation Science and Engineering**, vol. 22, pp. 3543-3552, 2025.
- [8] **Sabha Raj Arya**, Sayad Javed Alam and Papia Ray, "Optimized PI Gain in UPQC Control Based on Improved Zero Attracting Normalized LMS," **IEEE-CPSS Transactions on Power Electronics and Applications**, vol. 9, no. 2, pp. 242-251, June 2024.
- [9] Prashant Kumar and **Sabha Raj Arya** and Khyati D Mistry, "Momentum adaption and meta-learning based DVR with optimized gains of fractional order PID controller," **IEEE Transactions on Aerospace and Electronic Systems**, vol. 60, no. 2, pp. 1309-1318, April 2024.
- [10] **S. R. Arya**, K. D. Mistry and P. Kumar, "Least Mean Mixed Norm Square/Fourth Adaptive Algorithm with Optimized FOPID Gains for Voltage Power Quality Mitigation," **IEEE Journal of Emerging and Selected Topics in Power Electronics**, vol. 11, no. 3, pp. 2632-2640, June 2023.
- [11] Prashant Kumar, **Sabha Raj Arya**, Khyati D Mistry and Shekhar Yadav, "A Self-Tuning ANFIS DC Link and ANN-LM Controller based DVR for Power Quality Enhancement," **IEEE-CPSS Transactions on Power Electronics and Applications**, vol. 8, no. 4, pp. 424-436, December 2023.
- [12] Prashant Kumar, **Sabha Raj Arya** and Khyati D Mistry, "TSKARNA-Norm Adaption Based NLMS with Optimized Fractional Order PID Controller Gains for Voltage Power Quality," **IEEE Chinese Journal of Electrical Engineering**, vol. 9, no. 3, pp. 84 - 98, Sept. 2023.
- [13] **S. R. Arya**, K. D. Mistry and P. Kumar, "A Hybrid Fuzzy Predictive DVR Model for Voltage Estimation Using Intelligent Learning," **IEEE Transactions on Power Delivery**, vol. 39, no. 1, pp. 378-385, Feb. 2024.
- [14] Sayed Javed Alam and **Sabha Raj Arya**, "Volterra LMS/F based Control Algorithm for UPQC with Multi Objective Optimized PI Controller Gains," **IEEE Journal of Emerging and Selected Topics in Power Electronics**, vol. 11, no. 4, pp. 4368 - 4376, Jan. 2022.

- [15] Jayadeep Srikakolapu, **Sabha Raj Arya** and Rakesh Maurya, "Robust Iteration Dependent Least Mean Square based Distribution Static Compensator using Optimized PI Gains," **IEEE Chinese Journal of Electrical Engineering**, vol. 8, no. 4, pp.79-90, Dec. 2022.
- [16] Jyoti Gupta, Rakesh Maurya and **Sabha Raj Arya**, "Designing an On-board Charger to Efficiently Charge Multiple Electric Vehicles," **IEEE Chinese Journal of Electrical Engineering**, vol. 9, no. 3, pp. 84-98, September 2023.
- [17] V. Rajagopal, Danthurthi Sharath, G. Vishwas, J. Bangarraju, **Sabha Raj Arya** and Ch. Venkatesh, "Optimized Controller Gains using Grey Wolf Algorithm for Grid Tied Solar Power Generation with Improved Dynamics and Power Quality," **IEEE Chinese Journal of Electrical Engineering**, vol. 8, no. 2, pp.- 75-85, Dec. 2020.
- [18] **Sabha Raj Arya**, Rakesh Maurya, Talada Appala Naidu and B. Chitti Babu, "Adaptive Observer for dynamic voltage restorer with optimized proportional integral gains," **IEEE Chinese Journal of Electrical Engineering**, vol. 8, no. 1, pp. 38-52, Feb. 2021.
- [19] Talada Appala Naidu, **Sabha Raj Arya**, Rakesh Maurya and Sanjeevikumar Padmanabhan, "Performance of DVR using Optimized PI Controller based Gradient Adaptive Variable Step LMS Control Algorithm", **IEEE Journal of Emerging and Selected Topics in Industrial Electronics**, vol. 2, no. 2, pp. 155-163, April 2021.
- [20] Talada Appala Naidu, **Sabha Raj Arya**, Rakesh Maurya, Sanjeevikumar Padmanabhan, "Variable fractional power- least mean square based control algorithm with optimized PI gains for the operation of dynamic voltage restorer" **IET power Electronics**, vol. 14, pp. 821–833, 2021.
- [21] Jayadeep Srikakolapu, **Sabha Raj Arya** and Rakesh Maurya, "Distribution Static Compensator using an Adaptive observer based control algorithm with Salp Swarm Optimization Algorithm, **IEEE CPSS Transactions on Power Electronics and Applications for publication**, vol. 6, no. 1, pp. 52-62, March 2021.
- [22] Sayed Javed Alam, **Sabha Raj Arya** and Ranjan Kumar Jana," Biogeography Based Optimization strategy for UPQC PI tuning on Full Order Adaptive Observer based Control, **IET Generation, Transmission and Distribution**, vol. 15, pp.279-293, 2021.
- [23] Aliva Routray, Khyati D Mistry, Sabha Raj Arya and B. Chittibabu, "Power output evaluation of a wind-solar farm considering the influence parameters," **IET Renewable Power Generation**, Vol. 15, pp. 1613–1623, 2021.
- [24] Amritha. K, V. Rajagopal, K. Narasimha Raju and **Sabha Raj Arya**, "Ant Lion algorithm for optimized controller gains for power quality enrichment of off grid

- wind power harnessing unit," **IEEE- Chinese Journal of Electrical Engineering**, vol. 6, no. 3, pp. 85-97, Sept. 2020.
- [25] Sayed Javed Alam and **Sabha Raj Arya**, "Control of UPQC based on steady state linear Kalman Filter for Compensation of power quality problems," **IEEE- Chinese Journal of Electrical Engineering**, vol. 6, no. 2, pp. 52-65, June 2020.
- [26] **Sabha Raj Arya**, Sayed Javed Alam and Papiya Ray, "Control algorithm based on limit cycle oscillator-FLL for UPQC-S with optimized PI gains," **IEEE-CSEE Journal of Power and Energy Systems**, vol. 6, no. 3, pp. 649-661, Sept. 2020.
- [27] Talada Appala Naidu, **Sabha Raj Arya**, Rakesh Maurya and Veramalla Rajgopal "Compensation of Voltage based Power Quality Problems using Sliding Mode Observer with Optimized PI controller Gains," **IET Generation, Transmission and Distribution**, vol. 14, no. 14, pp. 2656-2665, July 2020.
- [28] Jyoti Gupta, Rakesh Maurya and **Sabha Raj Arya**, "Improved Power Quality On-Board Integrated Charger with Reduced Switching Stress, **IEEE Transactions on Power Electronics**, vol. 35, no. 10, pp. 10810-10820, Oct. 2020.
- [29] Jyoti Gupta, Rakesh Maurya and **Sabha Raj Arya**, "On-Board EV Battery Charger with Improved Power Quality and Reduced Switching Stress, **IET Power Electronics**, vol. 13, no. 13, pp. 2885-2894, Oct. 2020.
- [30] Ashutosh k. Giri, **Sabha Raj Arya**, Rakesh Maurya and B Chitti Babu, "Control of Voltage Source Converter for Enhancement of Power Quality in off-Grid Distributed Power Generation," **IET Renewable Power Generation**, vol. 14, no. 5, pp. 771-778, 2020.
- [31] Ashutosh K Giri, **Sabha Raj Arya**, Rakesh Maurya, and B. Chitti Babu, "VCO less PLL Control Based VSC for Power Quality improvement in Distributed Generation System," **IET Electric Power Applications**, vol. 13, no. 8, pp. 1114-1124, 2019.
- [32] Talada Appala Naidu, **Sabha Raj Arya** and Rakesh Maurya, " Dynamic Voltage Restorer with Quasi Newton Filter based Control Algorithm and Optimized values of PI Regulator Gains, **IEEE Journal of Emerging and**

- Selected Topics in Power Electronics***, vol. 7, no. 4, pp. 2476-2485, Dec. 2019.
- [33] Ashutosh K. Giri, **Sabha Raj Arya** and Rakesh Maurya, "Compensation of Power Quality Problems in Wind based Renewable Energy System for Small Consumer as Isolated loads, ***IEEE Transactions on Industrial Electronics***, vol. 66, no. 11, pp. 9023-9031, Nov. 2019.
 - [34] T. Appala Naidu, **Sabha Raj Arya** and Rakesh Maurya, "Multi-Objective Dynamic Voltage Restorer with Modified EPLL Control and Optimized PI Controller Gains," ***IEEE Transactions on Power Electronics***, vol. 34, no. 3, pp. 2181-2192, March 2019
 - [35] Ashutosh K Giri, **Sabha Raj Arya**, Rakesh Maurya and Ramakanta Mehar, "Variable Learning Adaptive Gradient Based Control Algorithm for VSC in Distributed Generation," ***IET Renewable Power Generation***, vol. 12, no. 16, pp. 1883 – 1892, 2018.
 - [36] **Sabha Raj Arya**, Rakesh Maurya and Talada Appala Naidu, "Amplitude Adaptive Notch Filter with Optimized PI Gains for Mitigation of Voltage based Power Quality Problems," ***IEEE-CPSS Transactions on Power Electronics and Applications***, vol. 3, no. 4, pp.313-323, December 2018.
 - [37] Sanjay Kumar Patel, **Sabha Raj Arya**, Rakesh Maurya and B. C. Babu, "Control Scheme for DSTATCOM based on Frequency Adaptive Disturbance Observer," ***IEEE Journal of Emerging and Selected Topics in Power Electronics***, vol. 6, no.3, pp. 1345-1354, 2018.
 - [38] Ashutosh K. Giri, **Sabha Raj Arya**, Rakesh Maurya and B. C. Babu, "Power Quality Improvement in Stand-alone SEIG based Distributed Generation System using Lorentzian Norm Adaptive Filter," ***IEEE Transactions on Industry Applications***, vol. 54, no. 5, pp. 5256-5266, March 2018.
 - [39] B. R. Ananthapadmanabha, Rakesh Maurya and **Sabha Raj Arya**, "Improved Power Quality Switched Inductor Cuk Converter for Battery Charging Application," ***IEEE Transactions on Power Electronics***, vol. 33, no.11, pp. 9412-9423, 2018.
 - [40] Ashutosh K. Giri ,Amin Qureshi, **Sabha Raj Arya**, Rakesh Maurya and B.Chitti Babu,"Features of Power Quality in Single Phase Distributed Power Generation using Adaptive Nature Vectorial Filter," ***IEEE Transactions Power***

- Electronics**, vol. 33 No.11 pp. 9482-9495, 2018.
- [41] Sanjay Kumar Patel, **Sabha Raj Arya**, Rakesh Maurya, "Nonlinear adaptive volterra filter for control of distribution static compensator," **IEEE Journal of Emerging and Selected Topics in Power Electronics**, vol. 5, no. 1, pp.559 - 567, March 2017.
 - [42] **Sabha Raj Arya**, Bhim Singh, Ram Niwas, Ambrish Chandra and Kamal Al-Haddad, "Power quality enhancement using DSTATCOM in distributed power generation system," **IEEE Transactions on Industry Applications**, vol. 52, no. 6, pp. 5203-5212, Nov.-Dec. 2016
 - [43] Sanjay Kumar Patel, **Sabha Raj Arya**, Rakesh Maurya and Bhim Singh, "An interior point algorithm for optimal control of DSTATCOM under distorted supply voltage conditions," **IET Generation, Transmission and Distribution**, vol. 10, no. 8, pp. 1778-1791, 2016.
 - [44] **Sabha Raj Arya** and Bhim Singh "Implementation of kernel incremental meta-learning algorithm in distribution static compensator," **IEEE Transactions Power Electronics**, vol.30, no.3, pp.1157-1169, March 2015.
 - [45] Sabha Raj Arya, Ram Niwas, Krishan Kant, Bhim Singh, Ambrish Chandra and Kamal Al-Haddad "Power quality improvement in isolated distributed generation system using DSTATCOM," **IEEE Transactions on Industry Applications**, vol. 51, no.06, pp. 4766-4774, Nov/Dec. 2015
 - [46] Bhim Singh, Krishan Kant Bhalla and **Sabha Raj Arya**, "Notch filter based fundamental frequency component extraction to control DSTATCOM for mitigating current related power quality problems" **IET power Electronics**, vol.8, no.9, pp.1758-1766, 2015.
 - [47] **Sabha Raj Arya** and Bhim Singh, "Neural Network based conductance estimation control algorithm for shunt compensation," **IEEE Transactions on Industrial Informatics**, vol.10, no.1, pp.569-577, Feb. 2014.
 - [48] **Sabha Raj Arya**, Bhim Singh, Ambrish Chandra, and Kamal Al-Haddad "Learning based Anti-Hebbian learning algorithm for control of distribution static compensator," **IEEE Transactions on Industrial Electronics**, vol. 61, no.11, pp. 6004-6012, Nov. 2014.
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- [162] Aliva Routray Khyati D. Mistry and **Sabha Raj Arya**,“Loss Minimization in Distribution System Considering Hourly Data Driven Probabilistic Solar Astronomical Model with GWO Technique,” in **Prof. of IEEE 1st International Conference on Energy, Systems and Information Processing (ICESIP2019), IITDM Kancheepuram, Chennai – 600127, 2019, pp.1-6.**
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- [173] Sabha Raj Arya, Krishan Kant, Ram Niwas, Bhim Singh, Ambrish

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- [178] Bhim Singh, Sabha Raj Arya,“Adaptive control of four-leg VSC based DSTATCOM in distribution system,”*in Proc. of 5th International Conference on Computer Applications in Electrical Engineering (CERA)*, 2013, pp.1-5.
- [179] Bhim Singh, Sunil kumar, **Sabha Raj Arya**, Ambrish Chandra and Kamal Al-Haddad, “A comparative study of adaptive control algorithm in distribution static compensator,”*in Proc. of 39th Annual Conference on IEEE Industrial Electronics Society*, 2013, pp. 1-6.
- [180] Bhim Singh, Sabha Raj Arya, Ambrish Chandra and Kamal Al-Haddad“Variable step learning control algorithm for VSC Based Shunt,” *in Proc. of IEEE 4th International Symposium on Power Electronics for Distributed Generation Systems*, Rogers, Arkansas 2013, pp.1-6.
- [181] **Sabah Raj Arya**, Bhim Singh, Ambrish Chandra, and Kamal Al-Haddad“Power factor correction and zero voltage regulation in

- distribution system using DSTATCOM,"in *Proc. of 2012 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Dec. 2012, pp.1-6
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- [183] Bhim Singh and Sabha Raj Arya"Admittance based control algorithm for DSTATCOM in three phase four wire system,"in *Proc. of 2^{ed} International Conference on Power, Control and Embedded Systems (ICPCES)*, Dec. 2012, pp.1-8.
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- [185] **Sabha Raj Arya**, Bhim Singh, Ambrish Chandra, and Kamal Al-Haddad"Control of shunt custom power device based on Anti-Hebbian learning algorithm,"in *Proc. of 38th Annual Conference on IEEE Industrial Electronics Society*, Oct. 2012, pp.1246-1251.
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- [192] Bhim Singh and **Sabha Raj Arya**, "A New Isolated Topology of DSTATCOM with Unipolar Switching," *in Proc. of National Power System Conference, 2012*, IIT-BHU Varanasi, pp.1-6.
- [193] Bhim Singh and **Sabha Raj Arya**, "Design and control of DSTATCOM for power quality improvement using cross correlation function approach," *in Proc. of National Electrical Engineering Conference*, 2011, KNIT Sultanpur, pp.1-8.
- [194] **Sabha Raj Arya** and Bhim Singh "MWLSE control algorithm of DSTATCOM for power quality improvement," *in Proc. of National Electrical Engineering Conference (NEEC-2011) on Power and Energy Systems for Tomorrow*, 2011, DTU Delhi, pp.1-6.
- [195] M.R. Dhandhara and **S.R. Arya**, "Design, and Analysis of Border line Current Control Technique for Input Power Factor Correction," *in Proc. of National Conference on Recent Advances in Electrical Engineering*, Dec. 26th and 27th 2008, J.N.T.U. college of Engg. Anantpur.
- [196] M.R. Dhandhara and **S.R. Arya**, "Design, analysis and implementation of input power factor correction technique in uncontrolled rectifier system," *in Proc. of National Conference on Recent Advances in Electrical Engineering*, Dec. 26th and 27th 2008, J.N.T.U. college of Engg. Anantpur.

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- [198] Rakesh Maurya, **S.R.Arya** and S.P.Srivastava, "Analysis of grid connected power converter for variable speed wind energy conversion," *in Proc. of 31st National Systems Conference*, p-147, 2007.
- [199] **Sabha Raj Arya** and P.Samuel, "Harmonic power flow analysis and suppression of harmonics using harmonic filter," *in Proc. of National Conference on Soft Computing and Machine*, C.O.B. Bhubaneswar , 24th to 26th march 2006.
- [200] Biswajit Nayak and S. R. Arya, "Analysis of chopper fed DC drive with PID and Fuzzy logic controller," *in Proc. of National Conference on Soft Computing and Machine*, C.O.B. Bhubaneswar, 24th to 26th march 2006.

(iii) Publication as a Book Chapters =05

- [201] **Sabha Raj Arya** and Sayed Javed Alam, "Phase Lock Loops For UPQC In Distribution system along with optimized PI-Controller Gains," Accepted Book Chapter in **Nova Science Publishers, Inc, NY:11788-3619, USA**
- [202] Bhim Singh, **Sabha Raj Arya**, Chinmay Jain, Sagar Goel, Ambrish Chandra and Kamal Al-Haddad, "Application of voltage source converter for power quality improvement," *Lecture Notes in Electrical Engineering*, vol. 327, Chapter 29, pp.335-346, Springer India, New Delhi.
- [203] Ashutosh K Giri, **Sabha Raj Arya**, Rakesh Maurya and Papia Ray, "Performance of Control Algorithms in Wind-Based Distributed Generation System with Power Quality Features: A Review," *Microgrid: Operation, Control, Monitoring and Protection, Lect. Notes Electrical Eng.*, Vol. 625, Papia Ray and Monalisa Biswal (Eds), chapter-3, **Springer Nature Singapore Pvt. Ltd. 2020** (https://doi.org/10.1007/978-981-15-1781-5_3)

- [204] Aliva Routray, Khyati D Mistry, **Sabha Raj Arya**, “Implementation of Black Widow Optimization Algorithm for Loss Minimization in an Unbalanced Radial Distribution System”, pp. 347-361, book on Renewable Energy Towards Smart Grid Springer, Singapore, 2022
- [205] Aliva Routray, Khyati D Mistry, **Sabha Raj Arya** “Application of Solar Energy as Distributed Generation for Real Power Loss Reduction in Radial Distribution Network,” pp. 403-432, book on Next Generation Smart Grids: Modeling, Control and Optimization Springer, Singapore, 2022.

**(iv) Communicated in International/National Journals/
Conference = 07**

- [1] P. Mahesh, **S. R. Arya** and P. Ray, “Adaptive parameter control of Induction Motor Drives using Neural-Fuzzy System for Electric Vehicles,” [Under Review- Submitted to IEEE Journal of Emerging and Selected Topics in Power Electronics]
- [2] Jagadeesh Ch, **Sabha Raj Arya** and Ashutosh K Giri Power Quality Response using Gradient Adaptive Variable Step Size Control with GWO in PMSG based System, [Under Review-International Journal of Ambient Energy]
- [3] P. Mahesh, **S. R. Arya** and P. Ray, “Indirect rotor flux oriented adaptive Induction Motor Drives with optimized fractional order PI gains,” [Under Review- submitted to Journal of the Institute of Engineers (India), Series B]
- [4] P. Mahesh, **S. R. Arya** “Optimal HONN for Parameter Estimation in Adaptive Speed Control of IRFOC based Induction Motor Drives,”[*Under review*-submitted to IEEE Transactions on Industrial Electronics]
- [5] Jagadeesh Ch, **Sabha Raj Arya** and Ashutosh K Giri, “PI Optimized Sigmoidal Variable Step Size Least Mean Square Based Control in Standalone System.” *Under review-Australian Journal of Electrical and Electronics Engineering*.
- [6] Hardik M. Pandya, **Sabha Raj Arya**, Sreedhar Mukherjee and Ashutosh K. Giri, “Inverse Vander-monde Matrix based LES-PLL Control for DSTATCOM Using TLBO, *Under review - Journal of Electrical Engineering*

- [7] Pudari Mahesh, **Sabha Raj Arya** and Papia Ray, "Artificial Neural Networks for Adaptive Parameter Estimation of Sensorless Speed control of IFOC-IMD," *Under review* - Journal of Electric Power Components and Systems.

15 Conference/Seminars/Short term course Attended

Sr. No.	Conference /Seminars	Organized By	Sponsor	During	Day	Weeks
1	Short term course on Modern Optimization Technique in Power system	University College of Engineering Burla (Orissa)	-	Dec.,19-31, 2005	12	2
2	Testing in Electrical Engg.	SVNIT –Surat	-	January, 3-5 2007	3	-
3	National workshop on Power Electronics	IIT- Bombay		September,6-7 2007	2	-
4	Short term course on VLSI And Embedded System	Cental Institute of Tool design , Hyderabad (A.P.)		Dec17-22, 2007	5	1
5	Short term course on Electric power quality: monitoring, analysis and mitigation	IIT Kanpur		April 07-11 ,2008	5	1
6	Staff training program infrastructural and curricular development of electrical drives laboratory	N.I.T. Warangal (A.P.)	-	September-24-26, 2008	3	-
7	Short term course on Application of mathematical sciences and soft computing	SVNIT	-	Dec, 8-12, 2008	5	1
8	Short term course on Advance Engineering Optimization Through Intelligent Techniques	SVNIT	-	Dec, 14-18, 2009	5	1

9	Participation certificate Tutorials PEDES2010	IIT Delhi		20 th Dec 2010	1	0
10	Short term course on Building Integrated Photovoltaic Thermal System	IIT Delhi		Feb., 8-14, 2011	7	1
11	Short term course on Research Methodology and Intellectual Property Rights (IPR)	EQUATE	-	Feb.,4-7, 2014	5	1
12	Short term course on Application of Evolutionary Computation Techniques on Power System	SVNIT	-	July, 14-18, 2014	5	1
13	Short term course on Mathematical Modeling in Science and Engineering	SVNIT	-	June,23-27, 2014	5	1
14	Short term course on Power Electronics Applications for Renewable Integration	IITK		30 th March,30 to April, 1, 2015	3	-
15	Short term course on Advance Power Electronics and Electrical Drives	MANIT – Bhopal		3 rd to 7 th Jan 2016	5	1
16	Short term course on Mathematical Modeling, Optimization, Fractional Calculus and their Computations in Engg. and Science	SVNIT – Surat		21 st -25 th June 2016	5	1

16 Supervision of M. Tech students in the area of Power Electronics

(A) Total number of student supervised up to 2025 = 25

Sr. No.	Thesis title	Year
1	An LLC Resonant Converter for Electric Vehicle Battery Charging under Wide Voltage and Load Variations	2025
2	Design and control of High Gain Converters	2024
3	Control of Synchronous Reluctance Motor Drives	2023
4	Parameter Estimation and Optimization of a 3-phase Sensorless Induction Motor Drive	2022
5	Solar Water Pumping System Through DC-Link Voltage Regulation	2022
6	Control Algorithm for DSTATCOM In Three Wire System	2022
7	Indirect vector control in PMSM Drives	2022
8	Design and Control of Solar Energy Based E-Rickshaw	2021
9	Simulation study of Field oriented Control of Induction Motor Drives	2020
10	Design and Implementation of Solar fed Single-Input Multi-Output DC-DC Converters	2019
11	Design and Implementation Power Converters for Electric Vehicles	2019
12	Distribution Static Compensator and its application in Distributed Power Generation	2018
13	Wireless Charging System for an Electric Vehicle Battery Charging	2018
14	Fuel Cell based DPG System	2017
15	Solar Based power generation system with Power Quality	2017
16	Single phase SEIG with Power Quality Features	2017
17	Power Generation System using Permanent Magnet Synchronous Generator with Power Quality Features	2016
18	Design and Control of Shunt Connected Custom Power Devices	2016
19	Design and implementation of shunt and series connected custom power devices	2015
20	Solar system with power quality features and its application in	2015

	water pumping	
21	Analysis of load performance and power quality improvement in inverter fed induction fed induction motor drives	2010
22	Design and analysis of input power factor correction converters for low and medium power application in AC/DC converters	2009
23	Design and analysis of input power factor correction technique in uncontrolled rectifier system	2008
24	Design and Analysis Chopper Fed DC drives	2006
25	Design and analysis of single phase full bridge SPWM inverter	2006

(B) Number of M. Tech student supervision ongoing (2025-2026) = 02

17 Supervision of Ph D. students in the area of **Power Electronics/ Electrical Power Quality**

(i) Number of Ph. D student supervision ongoing up to 2025 = **12 (Under progress) + 11(Completed)**

Sr. No.	Name of student/ research scholar	Topic/ Research Area	Year of registration	Guide/ Co-Guide
(1)	Sanjay Kumar Patel (D14EL002)	Control Algorithms for DSTATCOM to Mitigate Power Quality Problems	2014-2018 (Completed)	as a Principal Guide
(2)	B. R. Ananthapadmanabha (D14EL009)	Improved Power Quality Converters for Electric Vehicle Battery Charging	2014-2019 (Completed)	as a Co-Guide
(3)	Ashutosh Giri (D16EL006)	Control Algorithms for Power Quality Improvement in Wind based Distributed Power Generation System	2016-2019 (QIP) (Completed)	as a Principal Guide
(4)	T A Naidu (DS16EL001)	Control Algorithms for Dynamic Voltage Restorer to Mitigate Voltage based Power Quality Problems	2017-2019 (JRF) (Completed)	as a Principal Guide

(5)	Aliva Routray (DS16EL002)	Solar and Wind energy driven Distributed Generation interface for loss minimization in Radial Distribution System	2017-2021 (Completed)	as a Co- Guide
(6)	Alam Sayed Javed (D17EL004)	Design and control of UPQC	2022 (Completed)	as a Guide
(7)	Jayadeep Srikakolapu Manikyala Rao (DS17EL003)	DSTATCOM and its Application in DG system	2022 (Completed)	as a Principal Guide
(8)	Jyoti Gupta (DS17EL001)	Battery charging and discharging system	2022 (Completed)	as a Co- Guide
(9)	Bindra Dawar	Wind based Distributed Power Generation System	2018 (QIP) Under progress	as a Guide
(10)	Hardik Pandya	Power Electronics and Power Quality	2019 (PEC) Under Submission	as a Guide
(11)	Vamireddy Malleswari	DVR control	2019 (PEC) (Under progress)	as a Guide
(12)	Prashant Kumar (D19EL005)	Design and control of DVR using Soft computing	2019 (Completed)	as a Principal Guide
(13)	Riucha Dubey	Control of Induction Motor Drives	2019 (PEC)	as a Co- Guide
(14)	Nitesh Tiwari (from MMMUT Gorakhpur-U.P)	Electric Vehicles	2019 (Completed)	as a Co- Guide
(15)	Chinmay V. Deshpande	Adaptive control of DVR	2020 (Under submission)	as a Co- Guide
(16)	Pudari Mahesh (D20EL003)	Parameter Estimation and Adaptive Control of Induction Motor Drives	2020 (Completed)	as a Guide

(17)	Ch. Jagdish	Distributed Power Generation	2022 (Under submission)	as a Guide
(18)	Uday Kumar	Power Quality	2022	as a Guide
(19)	Ms. Sana (JEF/FPS)	SEIG	2023	as a Guide
(20)	Ravin Patel (SVNIT and IIT Mandi scheme)	PMSG and system	2023	as a Guide
(21)	Prasad Vasant Joshi	Single Phase SEIG	2024	as a Guide
(22)	Ms. Nancy Kumar	Motor Control	2025	as a Guide
(23)	Mr. Bhanu Pratap Singh	Power Quality/ Motor Control	2025	as a Guide

18. Reviewer for the Journals

IEEE Transactions on Industrial Electronics

IEEE Transactions on Power Electronics

IET Power Electronics

International Transactions on Electrical Energy Systems

IEEE Journal of Emerging and Selected Topics in Power Electronics

Journal of Electric Power Components and Systems

Journal of Electric Power System Research

Place – Surat (India)

Date: 25-06-2025

Dr. Sabha Raj Arya