

**Name:**

Dr. Mandar Padmakar Bhawalkar

**Designation:**

Assistant Professor

**Contact Details:**

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**Educational Qualifications:**

- Ph.D. (Electrical Engineering), Savitribai Phule Pune University, Pune, Mar 2018
- M.E. (Electrical Power Systems), Pune University, Pune, Dec 2001.
- B.E. (Electrical), Pune University, Pune, May 1997
- ADCSSA BTE, Mumbai, Aug 1994
- D.E.E. BTE, Mumbai, Aug 1992
- Certified Energy Auditor, 2004

**Experience:**

- Industrial: 2 Years
- Teaching: 23 Years
- Research – 1 year

**Research Interests:**

- Renewable energy
- Grid Integration
- Power Quality
- FACTS Devices

**Research Projects:**

- Development of EV test setup under MODROBs
- Development of Brushless Doubly Fed Reluctance Generator for Wind Power Application
- Grid Integration of renewable energy sources.

### Field of Consultancy (Aspiring):

- Energy Management
- Power Quality
- Renewable Energy
- Electrical machines

### Consultancy offered:

- **Century Enka Ltd.**, Pune: Testing and Calibration of Panel Energy Meters.
- **Mahati Electricals**, Pune: Testing of transformer and testing of meters.
- **Neptune India Ltd.**: Testing of electronic trivector meter.
- **Wheels India Ltd.**: Testing of brush less dc motors.
- **Shree steels Industries**, Pune: Harmonics measurements and analysis.
- **Sakal Press**: Harmonics measurements.
- **Tata Consultancy services**, Pune: Harmonics measurements.
- **Zedan Consultant, Saudi Arabia**: Calculation of Electrostatic and Electromagnetic stresses at 380kV substation located at Hawihay, Saudi Arabia.
- **Smita Enterprises**: Testing of electronic ballast.
- **Exide Batteries**, Pune : Harmonic measurements and analysis.
- **Defense Research and Development Organization, Dighi**, Pune : Validation of Prototype design of Dual Frequency DG set for defense applications.
- **Rotary Club Sinhagad Rd.**, Pune - Safety audit survey of distribution transformers located in Pune city in association with.
- **Cummins India Ltd.**, Pune. Energy audit.
- **MSEB** - Energy audit of 11kV feeder,
- **Spin Instruments**: Testing of tri-vector meters.
- **Ambik Harmonic Filters**: Testing of APFC.
- **PVG's COET.** – Energy Audit & HT substation and DG set installation
- **NSK Engineers**: Power system studies by using ETAP-PSCAD software.
- **CG- Corel ( CoLogics)**- Testing of panel type energy meters.
- **NOVA Engineers** – Testing of 1500kW, 6.6kV IM at Mather & Platt Pune for Crompton Greves.
- **Spin Instruments**- Testing of L&T Make Trivector Meter under simulated abnormal conditions.
- **Kirloskar Brothers Ltd.** – Residual Voltage Test on Pump Motor to be installed at Narora Nuclear power plant.
- **Amul Crankshafts** – Trouble shooting of thyristor control induction hardening furnace
- **Royal Electrical** - Earth mat design for 22kV Switching Station.
- **Cologix** – Testing of panel type energy monitors to be fitted with Cummins Diesel Genset.
- **Kirloskar Brothers Ltd.** – Residual Voltage Test, Run Down Test and Inrush Current Test on 150HP Pump being installed in nuclear power plant.
- **Kraft Powercon India Pvt. Ltd.** – Testing of rectifier transformer units
- **Kraft Powercon India Pvt. Ltd.** – Harmonic measurements of rectifier transformer units
- **Kirloskar Brothers Ltd.** – Measurement and analysis of inrush current of 35kW motor.

- **Taj Mahal Hotel Mumbai** – Energy Audit
- **Bajaj Auto Pro-biking Showroom**, Pune – Energy Audit
- **Jubilient Organics**, Neera – Energy Audit
- **R & D E Dighi DRDO Labs** – Validation of design of dual frequency generator
- **Mahati Electrics Pune** – Leakage inductance calculations and force calculations for shell type furnace transformer  
Revenue generation – 7 lacs

#### **Number of Publications:**

International Journal: **05**

National Journal: **10**

International Conference: **11**

National Conference: **07**

#### **Number of Books / Book chapters Published: 01**

#### **Number of PG Students Guided: 12**

#### **Recognition/ Awards:**

- Felicitation on hands of Yogatadnya Dadaji Vaishampayan as a 'Adarshya Shikshak'(Best Teacher award) in 2004.
- Felicitation by Energy Forum of Institute of Engineers, Pune local center for qualifying the first ever examination held for National certification examination for energy auditors, conducted by Bureau of Energy efficiency in 2004.
- Received Best Paper Award for paper "Brushless Doubly fed Reluctance machine and its control", IEEE International Conference ICACDOT Sept 2016 at I<sup>2</sup>IT.
- Received Best Paper Award for paper "Comparison of Two Robust Phase Locked Loops used for Electric Utility Applications" presented at The Institution of Engineers(I)- Pune Local Centre, Technical Journal No: 38, ISBN No: 978-81-924990-2-4.
- Received Second prize in Dipex 2016 for BE Project. 2016.

#### **Professional Society Memberships:**

- Senior Member of Institute of Electrical and Electronic Engineers(IEEE), USA.
- Member of IEEE Power and Energy Society
- Member of IEEE Industry Application Society
- Life Member of Institute of Engineers
- Life Member of Indian Society for Technical Education India(LMISTE)

**Number of FDPs / STTPs organized: 07**

**Number of Workshops organized: 35**

**Number of Conferences / Seminars organized: 20**

**Number of FDPs / STTPs attended: 21**

**Number of Workshops attended: 40**

**Number of Conferences / Seminars attended: 30**

**Number of Online Certification Courses done: 09**

**Number of Webinar attended: 15**

**Number of times served as a Resource Person: 15**

**Number of times served as a Reviewer / Judge: 25**

**Details of Research papers published:**

- Mrs.G.A. Vaidya, Mr. M.P. Bhawalkar and Mr.Y.P.Nerkar, “Harmonics in Practical Systems”, presented at ACE 2003, Annual convention of IEEE India Council held in December 2003 in Pune and published in souvenir.
- M.P.Bhawalkar, Mrs.P.R. Khatri “ Energy Management in Pumping Systems “ , , presented at IMAE05, International conference on multidisciplinary aspects of engineering 7<sup>th</sup> and 8<sup>th</sup> Jan 2005 organized by IEEE,WIE and PIET
- Prof. M.P.Bhawalkar & Prof.Mrs.G.A.Vaidya “Harmonic Pollution of Distribution System due to Computer and allied loads”-. National Conference on Power Engineering Practices and Energy Management (PEPEM-05) on 28<sup>th</sup> and 29<sup>th</sup> January 2005 organised by Thapar Institute of Engineering & Technology, Patiala.
- Prof.P.R.Khatri, Prof.M.P.Bhawalkar, Mrs.Jape& Mrs.Motling, “ Maximum Power point Tracking of PV systems” –,National Conference on Power Engineering Practices and Energy Management (PEPEM-05) on 28<sup>th</sup> and 29<sup>th</sup> January 2005 organised by Thapar Institute of Engineering & Technology, Patiala
- M.P. Bhawalkar and Mrs. P.R. Khatri, “ Role of Wind Power Plants under Deregulated Environment”, presented at 23<sup>rd</sup> National Convention of Institution of Engineers for Electrical Engineers, Pune local center, 23-24 Nov. 2007.
- G.P. Somvanshi, S.T. Gaikwad, M.P. Bhawalkar, “ Control of stand-alone variable speed wind turbine with a permanent magnet synchronous generator”, , International conference on Applied Science and Engineering ICASE 2012, ISBN 978-81-923541-0-8 30<sup>th</sup> July 2012.
- Manisha Wani, Mrs. K. M. Kurundkar, Prof. M. P. Bhawalkar,” Use of Power Electronic Converters To Suppress Transformer Inrush Current”, IEEE International Conference on Power Electronics , Drives and Energy Systems **PEDES**, 16-19 Dec 2012, Bengaluru, India.

- Prof. S. S. Hadpe, M. P. Bhawalkar, N. B. Shaikh, K. P. Varade, "Variable Hysteresis Band Current Controller for Power Harmonics Compensation", in International Journal of Emerging Technology and Advanced engineering, Vol 3, Issue 4, ISSN 2250-2459, April 2013.
- Shital M. Wasu, U. B. Sarode, M.P.Bhawalkar, "Speed control of PMSM system using improved reaching law based sliding mode control and disturbance observer technique", at International Journal of Advanced Computer Research, ISSN No: 2249-7277, Vol 3, Issue 13, Dec 2013.
- M. P. Bhawalkar, Dr Y. P. Nerkar, Dr. N. Gopalkrishan," Energy Storage Technologies for Wind Power Generation ",presented at The Institution of Engineers(I)- Pune Local Centre, Technical Journal No: 38, ISBN No: 978-81-924990-2-4.
- M. P. Bhawalkar, Dr Y. P. Nerkar, Dr. N. Gopalkrishan," Comparison of Two Robust Phase Locked Loops used for Electric Utility Applications" presented at The Institution of Engineers(I)- Pune Local Centre, Technical Journal No: 38, ISBN No: 978-81-924990-2-4.
- M. P. Bhawalkar, Dr Y. P. Nerkar, Dr. N. Gopalkrishan," Development of Robust Phase Locked Loop System and its Operation for Distorted Utility Conditions", Presented at National Power Electronics Conference **NPEC 2015**, 22-24 Dec 2015 organized by IIT Bombay.
- S. P. Kuchekar, M. P. Bhawalkar," Design of Impulse Generator for Testing of Reactors", presented at The Institution of Engineers(I)- Pune Local Centre, Technical Journal No: 38, ISBN No: 978-81-924990-2-4.
- Kushal Lodha, M. P. Bhawalkar," Robust Control of DC Drive using Sliding Mode Control ", IEEE International Conference on Energy Systems and Applications, 30Oct-1Nov Organized at D. Y. Patil COE, Pimpri. 2016.
- S. Kunte, M. P. Bhawalkar, Dr Y. P. Nerkar, Dr. N. Gopalkrishan, Dr. Mrs. G. A. Vaidya," A Simulation Study of Four Configurations of Brushless Doubly Fed Reluctance Machine", in National Journal at The Institution of Engineers (India) Pune, Vol 39, pp 168-176-5,10-11 October 2015, ISBN No. 978-81-924990-3-1
- S. Kunte, M. P. Bhawalkar, Dr. N. Gopalkrishan, Dr Y. P. Nerkar," Design and Analysis of Brushless Doubly Fed Reluctance Generator for Wind Energy Application", IEEE 18th International Conference on Electrical Machines and Systems, ICEMS 2015, 25-28 Oct 2015,Pattaya, Thailand. Available at IEEE Explore, DOI: [10.1109/ICEMS.2015.7385383](https://doi.org/10.1109/ICEMS.2015.7385383), pp 2082-2088, 2015.
- Somitra Kunte, Mandar Bhawalkar, Dr. N. Gopalkrishan, Dr. Y. P. Nerkar, 'Brushless Doubly fed Reluctance machine and its control.',IEEE Conference at I<sup>2</sup>IT, ICACDOT Sept 2016. Available at IEEE Explore, DOI: [10.1109/ICACDOT.2016.7877670](https://doi.org/10.1109/ICACDOT.2016.7877670), pp.667-672, 2016.
- P. Salunkhe, M. Bhawalkar, Dr. N. Gopalkrishan, Dr. Y. P. Nerkar, 'Optimal Placement of Wind Power Generation in Electric Grid.',National Journal at Institution of Engineers (India) Pune, Vol 40, pp 165-171,Nov 2016, ISBN No. 978-81-924990-4-8.
- Somitra Kunte, Mandar Bhawalkar, Dr. N. Gopalkrishan, Dr. Y. P. Nerkar, 'Optimal Design and Comparative Analysis of Different Configurations of Brushless

Doubly fed Reluctance machine', Conference IEEE ICEMS2016 Chiba, Japan 13-16 Nov 2016. Available at IEEE Explore

- S. Kulkarni, A. Pendse, P. Wagh, , M. Sonawane, O. Pawaskar, M. Bhawalkar and M. Kulkarni, “ Production Friendly Desdign and Development of Brushless DC Machines”, 19<sup>th</sup> Interbnational Conference on Electrical Machines and Systems, ICEMS2016, Chiba, Tokyo, Japan, 13-16 Nov 2016, ISBN 978-4-88686-0989.
- Somitra Kunte, Mandar Bhawalkar, Dr. N. Gopalkrishan, Dr. Y. P. Nerkar Dr. G.A. Vaidya, “ Selection of suitable pole combination of BDFRM for variable speed applications”, IEEE WIE CON-ECE 19-21 Dec 2016 at AISSMS IOIT. Available at IEEE Explore
- S. Kunte, M. P. Bhawalkar, Dr. N. Gopalkrishan, Dr Y. P. Nerkar, Dr. Mrs. G. A. Vaidya,” A Simulation Study of Four Configurations of Brushless Doubly Fed Reluctance Machine”, in National Journal, Annual Technical Volume of Electrical Engineering Division Board, National Journal, The Institution of Engineers (India) Vol. 2 2016, ISBN 978-81-932567-2-5
- M. Pedse, S. Kunte, M. Bhawalkar, Dr. N. Gopalakrishnan, Dr. Y.P. Nerkar “ Brushless Doubly Fed Reluctance Machine an Option for Variable Speed Applications” , International Conference on Electrical Rotating Machine ELROMA 2017, organised by IEEMA and technically sponsored by IEC.
- M. P. Bhawalkar, Dr. N. Gopalkrishan, Dr Y. P. Nerkar, “ An Overview of Wind Power Generating Systems” IEEMA Journal, Vol. 9, No.1, pp. 87-93, Sept 2017. ISSN 0970-2946.
- Somitra Kunte, Mandar Bhawalkar, Dr. N. Gopalkrishan, Dr. Y. P. Nerkar, ‘Optimal Design and Comparative Analysis of Different Configurations of Brushless Doubly fed Reluctance machine’, published in Issue 6, No 6. **Industry Application transactions of IEEJ** Nov. 2017.
- M. P. Bhawalkar, Dr. N. Gopalkrishan, Dr Y. P. Nerkar, “Power Electronic Converters in Wind Power Generator Plants” IEEMA Journal, Vol.9, No.8, pp. 74-83, Apr. 2018. ISSN 0970-2946.
- Abhijit Pawar, M.P. Bhawalkar, “ Enhancement of fault ride through capability of DFIG based wind farm” National Journal at Institution of Engineers (India) Pune, Vol 42, pp 165-171, Nov 2018, ISBN No. 978-81-924990-4-8.
- M. P. Bhawalkar, Dr. N. Gopalkrishan, Dr Y. P. Nerkar, “On the enhancement of Fault Ride Through Capability of Wind Farms” , **Power Research**, Journal of Central Power Research Institute, Vol. 14(1)/47-59, June 2018. DOI : 10.33686/pwj.v14i1.142184.
- M.P. Bhawalkar, Dr. N. Gopalakrishnan, Dr. Y.P. Nerkar,” A Review of Indian Grid Codes for Wind Power Generation”, **Springer Journal of The Institution of Engineers (India): Series B**, pp. 1-9, May 2019. J. Inst. Eng. India Ser. B (December 2019) 100(6):609–617 <https://doi.org/10.1007/s40031-019-00407-x>
- M.P. Bhawalkar, Dr. N. Gopalakrishnan, Dr. Y.P. Nerkar, “ Reactive power capability curve of Brushless Doubly fed Reluctance Generator” , **Wind Engineering** , pp 1-19, Sept. 2019, <https://doi.org/10.1177%2F0309524X19872776>.



- Lalit Rokade, M.P. Bhawalkar, “ Switched Reluctance Machine Speed Control and Torque stabilization using PID controller”, International Conference on Power Initiatives ICPI 2020, 22-23 July 2020.

#### **Details of books / book chapters published:**

- “Optimal Design of Brushless Doubly Fed Reluctance Machine” published in book Optimization and Control of Electrical Machines , 2018, pp. 33-54, InTech Open ISBN 978-1-78923-4

#### **Details of FDPs / STTPs attended in last 5 years:**

- ISTE – STTP on Energy Storage System, organized by IEEE and PVG’s COET, Pune in 2016. (1 Week)
- FDP on TI –Tiva kit organized at PVG’s COET in Dec 2016.
- Entrepreneurship development programme in Solar Energy , 16<sup>th</sup> Dec 2018- 17<sup>th</sup> Feb 2019, Organised by Udyogwardhini and sponsored by Tata Capital.
- FDP on “Research Opportunities in Electrical Engineering” online FDP conducted by Govt. College of Engineering Karad, 4 May -14 May 2020. (2Weeks)
- FDP on “ Advances in Electrical Engineering” online FDP conducted by PVG’s COET, Pune, 8 June – 13 June 2020. (1 Week)
- AICTE Sponsored STTP on “ IoT & Advanced Power Electronics Applications in Smart Grid” Organised by KK Wagh College of Institute of Engineering, Education and Research Nashik, 10<sup>th</sup> Aug to 14<sup>th</sup> Aug 2020 (1 Week).
- FDP on “Simulation of Electric Machine's using ANSYS Electromagnetic Software and its Applications in Electric Vehicle” organised by Bharti Vidyapeeth’s College of Engineering and Technology, Pune, 3<sup>rd</sup> Sept to 5<sup>th</sup> Sept 2020.
- FDP on “Outcome based Education” organised by PVG’s College of Engineering and Technology, Pune, 6<sup>th</sup> Oct to 8<sup>th</sup> Oct 2020.
- Two weeks online faculty development program sponsored by AICTE - “Electric Vehicle Design, it’s Applications & Control strategies” organised by Department of Electrical Engineering, from *1st December to 14th December, 2020* at P.E.S.’s Modern College of Engineering Pune-05.
- Two weeks online faculty development program sponsored by AICTE - “*Artificial Intelligent Controller for Smart charging of Electric Vehicle and other Applications*” organised by Department of Electrical Engineering, from *18th January to 1st February 2021* at P.E.S.’s Modern College of Engineering Pune-05.

#### **Major Portfolios Handled: (college level and department level)**

- AICTE Affiliation work
- NBA Coordinator at department level
- Academic Coordinator at department level
- Purchase coordinator
- Co-Principal Investigator MODROBS -

### **Role in University Bodies....**

- Member LIC Committee, SPPU
- Subject Expert, interview committee, SPPU
- Chairman for Various subject at UG and PG level

### **Any other information which is not covered in above points:**

- Council member Electrical Division Board, Pune Local Centre, Institution of Engineers 2019-2021
- Chairman of PES-IAS Chapter IEEE Pune
- Development of e-Content, Virtual laboratory for Power Electronics by using 3D experience, for 3D-PLM, Dassult System.