

# Department of Electrical Engineering



## Dr. P. Satish Kumar Professor

### Academic Qualifications

- Professor  
June 2018 - Till date
- Associate Professor,  
June 2015 - June 2018
- Assistant Professor  
June 2007 - June 2015, OU
- Associate Professor  
Engg Colleges, 1996 - 2007
- Ph.D., JNTUH, 2011
- M.Tech., JNTUH, 2003
- B.Tech., JNTU, 1996

### Membership in Societies

- Senior Member IEEE
- Fellow of Institute of Engineers (FIE)
- Life Member, ISTE
- Life Member SSI
- Life Member: IAENG, IACSIT, ESR Group, ICGST

### Research Supervision

- Ph.D.'s awarded : 05
- Ph.D.'s guiding : 08
- ME Projects guided : 35
- Publications : 102
- Research Projects : 04
- Patents Applied : 05
- Patents Granted : 02

**Dept. of Electrical Engineering**  
University College of Engineering  
Osmania University, Hyderabad  
Telangana State, INDIA- 500 007  
Ph: +91 98490 72342

Email: satish\_8020@yahoo.co.in  
satish\_8020@osmania.ac.in

### Mission Statement

The activity includes teaching and research in core electrical machines, power electronics, special machines, multilevel inverters, design and development of hybrid wind solar power generation system with the goal of advancing the knowledge and methodologies in these areas. Together with PhD students, most challenging issues undertaken in the electrical engineering in quest for novelty and creativity. Innovation is being targeted to the right applications.

### Research Interests

The research area includes power electronics and drives, multilevel inverters, Pulse width modulation techniques, renewable energy sources, hybrid power systems and micro grid.

### Top 5 Achievements

- 'Best Teacher Award-2014' from the State Government of Telangana, 5th September 2014.
- 'Certificate of Merit' for the presentation of research paper in the "International Conference ICEEA - 2013", University of California, San Francisco, USA.
- 'Award for Research Excellence-2014' and 'Global Teacher Role Model Award-2015'.
- "Fast Track Scheme for Young Scientist Award" from SERB, 2013.
- Authored three textbooks Pulse Width Modulation: Analysis and Performance in Multilevel Inverters, Electrical Machines - A Practical Approach and Computer Methods in Power Systems-Analysis with MATLAB.

### Sponsored Research Projects/ Patents

- **DST : India – Slovenia Joint Project** entitled "Performance Enhancement of Grid Connected Multilevel Inverter based Wind Energy Conversion System with Low Voltage Ride Through Capability using Power Conditioners", Project Cost: Rs.20, 80,000/- (ongoing).
- **DST : Indo–Sri Lanka Joint Project** entitled "Design and Development of Hybrid Wind - Solar Power Generation System using Multilevel Inverters for Grid Connected Applications", 3 years, Project Cost: Rs.25,99,780/- (completed).
- **UGC : Major Research Project** on Cascaded H-bridge Multilevel Inverters, 3 years Project Cost: Rs. 8,49,000/- (completed).
- **SERB (DST) : Research Project** on Neutral Point Clamped Multilevel Inverters, 3 years, Project Cost: Rs. 20,10,000/- (completed).
- **Australian Innovation Patent** granted on "Machine Learning Based Fish Monitoring Machine and Method Thereof", Patent No. 2020102433, 25/09/2020.
- **Design Patent** granted on "Smart Self Disinfecting Face Shield", Design No. 330167-001, 18- 06-2020 by Intellectual Property India.

### Research Activities / Internal Visits

- Established 'Research Lab for Multilevel Inverters' in the Department of Electrical Engineering, University College of Engineering, Osmania University.
- Visited National University of Singapore (NUS) and Nanyang Technological University (NTU), Singapore, Tokyo Institute of Technology, Japan to interact with faculty members and research scholars for the collaborative research and productive interactions.
- Visited University of Moratuwa and University of Ruhuna, Sri Lanka and developed prototype of hybrid power system and Presented papers in various conferences held at USA, Hong Kong, Bangkok, Singapore, Paris, Switzerland, Sri Lanka and Japan.

### Main Administrative Positions

- Additional Controller of Examinations (Confidential), Osmania University (2015–19) and (2021–present).
- Director, Diamond Jubilee Library, University College of Engg. (2020 – present).
- Chairperson. Board of Studies in Electrical Engineering, Osmania University (2019 - 2021)
- Joint Director of Evaluation (2012 – 2014), Warden (2009-2016), UCE, OU.

### Selected Publications

- A Novel IUPQC for Multi-Feeder Systems using Multilevel Converters with Grid Integration of Hybrid Renewable Energy System" *IEEE Access Journal*, Vol. 8, pp.44903–44912, 2020.
- "Energy Management System for Small Scale Hybrid Wind Solar Battery Based Microgrid" *IEEE Access Journal*, Vol. 8, pp. 8336 – 8345, January 2020.
- "Generalized Algorithm of Reverse Mapping Based SVPWM Strategy for Diode Clamped Multilevel Inverters" *IEEE Transactions on Industry Applications*, Vol. 54 , Issue: 3 , pp. 2425-2437, May-June 2018.
- "Design and Implementation of Wind Turbine Emulator using FPGA for Stand Alone Applications" *International Journal of Ambient Energy (Taylor & Francis)*, pp. 1-13, 2020.
- "A Simplified and Generalised SVPWM Method Including Over Modulation Zone for Seven Level Diode Clamped Inverter – FPGA Implementation" *International Journal of Power Electronics, (Inderscience Publications)*, Vol.10 No.4, pp. 350–366, 2019.