

Department of Electrical Engineering
Sardar Vallabhbhai National Institute of Technology,
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Dr. Suresh Lakhimsetty

Assistant Professor

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Research Interests

- Power Electronics
- AC Drives
- Multilevel inversion through Open-End Winding Configuration
- High Gain DC-DC converters
- Electric Vehicles

Educational Qualifications

Course	Specialization	Institution	Date of completion
Ph. D.	Power Electronics & Drives	National Institute of Technology, Warangal, Telangana	November 2019
M. Tech	Computer Controlled Industrial Power	National Institute of Technology, Calicut, Kerala	May 2010
B. Tech	Electrical & Electronics Engineering	Vignan Engineering College, Vadlamudi, Andhra Pradesh	May 2008
Diploma	Electrical & Electronics Engineering	Bapatla Polytechnic College, Bapatla, Andhra Pradesh	March 2005
SSC	--	Z P High School, Cherukuru, Andhra Pradesh.	March 2002

Professional Background

S. No.	Name of the Institute	Name of the post	Period	
			From	To
4	Sardar Vallabhbhai National Institute of Technology Surat, Gujarat	Assistant Professor	6 th May-2021	Till Date
3	V R Siddhartha Engineering College, Vijayawada	Assistant Professor	9 th May-2019	30 th April-2021
2	K L University, Vaddeswaram	Assistant Professor	28 th July-2014	7 th July-2015
1	Vignan's Lara Institute of Technology & Science, Vadlamudi	Assistant Professor	10 th June-2010	27 th July-2014

Research Projects

Role	Name of the Project	Funding Agency	Budget	Duration
PI	Implementation of Efficient Switching Algorithms for Open-End Winding Induction Motor Drive for PV-Powered Electric Vehicles	SVNIT Surat	10 Lakhs	2022-2023 (ongoing)
Co-PI	FIST Project	DST India	88 Lakhs	2023-2028 (ongoing)

Significant Awards/Achievements/Honors/Distinctions Received

S. No.	Details of the Awards/Achievements/Honors/Distinctions
1	honored with Teacher of Excellence Award in the year 2012 at Vignan' s Lara Institute of Technology & Science, Vadlamudi, AP.
2	Acted as Meta-reviewer for IEEE International Conference on Smart Technologies for Power, Energy and Control (STPEC-2021)
3	Acted as Meta-reviewer for IEEE Second International Conference on Power, Control and Computing Technologies ICPC ² T 2022
4	Acted as Technical Session Chair for the track Power Electronics and Electrical Transportation Systems at IEEE Second International Conference on Power, Control and Computing Technologies (ICPC ² T- 2022), organized by Department of Electrical Engineering, NIT-Raipur, INDIA, held from 1 st – 3 rd March 2022.
5	Acted as Technical Program committee member for the International Conference on Sustainable Development Goals & Gender Perspective (ICS DGAGP), 25 th and 26 th October 2021, Department of Electrical Engineering, and SVNIT Surat.

Journals

1. **Suresh Lakhimsetty**, Hema Kumar Patnana, Aniket Sharad Manwar & Veeramraju Tirumala Somasekhar (2023) Hybrid-Clamping SVPWM Scheme for a Four-Level Open-End Winding Induction Motor Drive, **Electric Power Components and Systems**, DOI: 10.1080/15325008.2023.2226674.
2. Kumar, PH, **Lakhimsetty, S**, Somasekhar, VT. A low-cost fault-tolerant permanent magnet brush-less direct current motor drive for low-power electric vehicle applications. *Int J Circ Theor Appl.* **2023**; 1- 12. doi:10.1002/cta.3642.
3. Kumar, PH, Mishra, D, **Lakhimsetty, S**, Somasekhar, VT. A space vector PWM scheme for an open-end winding induction motor drive with a reduced power loss. *Int Trans Electr Energ Syst.* **2021**; 31(11):e13104. doi:10.1002/2050-7038.13104.
4. **Lakhimsetty, S**, Hema Kumar, P, Somasekhar, VT. Hybrid space-vector pulse width modulation strategies for a four-level open-end winding induction motor drive with an improvised harmonic performance and balanced DC-link capacitors. *Int Trans Electr Energ Syst.* 2021; 31:e12814. <https://doi.org/10.1002/2050-7038.12814>.

5. Chandra Sekhar, O, **Lakhimsetty, S**, Bhat, AH. A comparative experimental analysis of fractional order PI controller based direct torque control scheme for induction motor drive. *Int Trans Electr Energ Syst* 2021; 31:e12705. <https://doi.org/10.1002/2050-7038.12705>.
6. P. H. Kumar, **S. Lakhimsetty** and V. T. Somasekhar, "An Open-End Winding BLDC Motor Drive With Fault Diagnosis and Autoreconfiguration," in *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 8, no. 4, pp. 3723-3735, Dec. 2020, doi: 10.1109/JESTPE.2019.2948968. ISSN: 2168-6777.
7. Chandra Sekhar O, **Lakhimsetty, S**. Direct torque control scheme for a five-level multipoint clamped inverter fed induction motor drive using fractional-order PI controller. *Int Trans Electr Energ Syst* 2020; 30:e12474. <https://doi.org/10.1002/2050-7038.12474>
8. **S. Lakhimsetty** and V. T. Somasekhar, "An Efficient Predictive Current Control Strategy for a Four-Level Open-End Winding Induction Motor Drive," *IEEE Transactions on Power Electronics*, vol. 35, no. 6, pp. 6198-6207, June 2020. DOI: 10.1109/TPEL.2019.2954864. ISSN No. 0885-8993.
9. **S. Lakhimsetty** and V. T. Somasekhar, "A Four-Level Open-End Winding Induction Motor Drive With a Nested Rectifier–Inverter Combination With Two DC Power Supplies," *IEEE Transactions on Power Electronics*, vol. 34, no. 9, pp. 8894-8904, Sept. 2019. ISSN No. 0885-8993, DOI: 10.1109/TPEL.2018.2884023
10. **S. Lakhimsetty**, V. S. P. Satelli, R. S. Rathore and V. T. Somasekhar, "Multilevel Torque Hysteresis-Band Based Direct-Torque Control Strategy for a Three-Level Open-End Winding Induction Motor Drive for Electric Vehicle Applications," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 7, no. 3, pp. 1969-1981, Sept. 2019. ISSN:- 2168-6777, DOI: 10.1109/JESTPE.2018.2870382
11. **S. Lakhimsetty** and V. T. Somasekhar, "Discontinuous decoupled SVPWM schemes for a four-level open-end winding induction motor drive with waveform symmetries," *IET Power Electronics*, vol. 11, no. 2, pp. 280-292, 20 2 2018. ISSN No.: 1755-4535, DOI: 10.1049/iet-pel.2017.0096
12. **S. Lakhimsetty**, N. Surulivel and V. T. Somasekhar, "Improvised SVPWM Strategies for an Enhanced Performance for a Four-Level Open-End Winding Induction Motor Drive," in *IEEE Transactions on Industrial Electronics*, vol. 64, no. 4, pp. 2750-2759, April 2017. ISSN No.: 0278-0046, DOI: 10.1109/TIE.2016.2632059.
13. **L. Suresh.**, G. R. S. Naga Kumar., M. V. Sudarsan and K. Rajesh “ A Comparative Analysis of PWM Techniques for ZSI in Application of Electric Vehicles ” *Journal of Electrical Systems*, Vol.9, Issue-4, December 2013, pp.453-467 [ISSN 1112-5209].
14. **L. Suresh.**, G.R.S.Naga Kumar & Dr. O. Chandra Sekhar “Analysis of Fuel Cell Based Converters in Application of Microgrids” *Journal of Electrical Engineering (JEE)* Vol. 15 Iss. 1 Jan. 2015, pp 191 - 198 [ISSN 1582-4594].

Books / Book-Chapters Published

1. **Suresh Lakhimsetty**, Hareesh Myneni and Obbu Chandra Sekhar. "Single Inverter switched SVPWM scheme for Four-Level Open-End Winding Induction Motor Drive" MULTILEVEL

CONVERTERS: ADVANCES AND APPLICATIONS, Wiley Scrivener Publishing.
(Accepted)

National / International Conferences

1. C. S. Obbu and **S. Lakhimsetty**, "Design of a Linear Permanent Magnet Synchronous Motor with minimized Cogging Force," *2023 IEEE IAS Global Conference on Renewable Energy and Hydrogen Technologies (GlobConHT)*, Male, Maldives, **2023**, pp. 1-3, doi: 10.1109/GlobConHT56829.2023.10087648.
2. S. T. Ramsham and **S. Lakhimsetty**, "Fuzzy-Logic Speed Controller for 3-Level Open-End Winding Induction Motor Drive with Predictive Torque Control Technique," *2022 Second International Conference on Power, Control and Computing Technologies (ICPC2T)*, **2022**, pp. 1-5, doi: 10.1109/ICPC2T53885.2022.9776783.
3. **S. Lakhimsetty** and K. M. Shaik, "A Comparative Analysis of Current Control Strategies for a Solar based Single-Phase Grid Connected Inverter," *2021 International Conference on Sustainable Energy and Future Electric Transportation (SEFET)*, 2021, pp. 1-5, doi: 10.1109/SeFet48154.2021.9375693.
4. S. V. S. Prasad, R. R. Singh, V. T. Somasekhar and **S. Lakhimsetty**, "Performance evaluation of an induction motor drive with direct torque control for open-end winding and cascaded three-level topologies," *2017 6th International Conference on Computer Applications in Electrical Engineering-Recent Advances (CERA)*, Roorkee, 2017, pp. 308-313.
5. **S. Lakhimsetty** and V. K. J. D. Prasad, "Comparative performance analysis of decoupled SVPWM techniques for a four-level open-end winding induction motor drive," *2016 IEEE 7th Power India International Conference (PIICON)*, Bikaner, 2016, pp. 1-6.
6. K. S. Sivanandan, **L. Suresh**, and T. S. Sirish "Design and Development of Microcontroller Based Control Model for Hybrid Assistive Limb (Knee)" *2nd International Conference on Signals, Systems & Automation (ICSSA 2011)* on 24th and 25th of January 2011 at G H Patel college of engineering and Technology, Gujarat.

Students Projects Supervised

2023-2024 (ongoing)

M. Tech

1. Kayala Naga Venkata Sandeep (P22EL006): PV-Battery system for electric vehicle applications (tentative)

2022-2023

B. Tech

1. Jay Patel (U19EE001), Yadav Rituraj (U19EE088), Sudhakar Singh (U19EE078) and Shubham Verma (U19EE002): Implementation of space-vector pulse width modulation scheme using PLECS software for speed control of 3-phase induction motor

M. Tech

1. Himanshu Prajapati (P21IC002): Dynamic behaviour, analysis, design and control of PEM fuel cell for automotive applications

- Radhika R Nair (P21IC005): Speed control of dual source photovoltaic fed three-level open-end winding induction motor drive
- Lingabathina Sravya (P21IC011): Nearest sub-hexagonal center based predictive current control strategy for open-end winding induction motor drive

2021-2022

B. Tech

- Shubham Sharma (U18EE010), Rachit Garg (U18EE021), Lucky Deshmukh (U18EE032) and Hiralal Kumar (U18EE049): Quasi Z-Source inverter for grid connected system

M. Tech

- Sushmita Tejrao Ramdham (P20IC012): Fuzzy Predictive Torque Control Scheme for A 3-Level Open-End Winding Induction Motor Drive

Workshop/SSTPs/Expert Talks/Conference Organized

Title	Name of the coordinator(s)	Date(s)	Place
An expert talk on "A Plug and Play Operational Approach for Implementation of an Autonomous Microgrid System"	Dr. Mahmadasraf A. Mulla & Dr. Suresh Lakhimsetty	20 th June-2023	SVNIT Surat
An STTP on "Digital Signal Processor: An Introduction with Code Composer Studio and PSIM Software"	Dr. Mahmadasraf A. Mulla & Dr. Suresh Lakhimsetty	14-16, 23-24 April-2022	SVNIT Surat
A workshop on "Introduction to PLECS Tool for Power Electronics Applications"	Dr. Suresh Lakhimsetty & Dr. M. Hareesh	2 nd – 6 th July-2020	V R Siddhartha Engg. College

Expert Lectures/Talks Delivered in CEP/ QIP/STTP/ Special Lectures

S. No.	Title of the Talk	Name of the Program	Date of Talk	Organizer and Venue
1	Implementation of SVPWM technique for open-loop v/f control of induction motor drive using PLECS	A One-week Workshop on "Multi-physics Analysis of Electrical Machine Using ANSYS Software and PLECS Simulation Tool for Power Electronics Applications"	28/09/2021	DST- SERB - CRG research project (Under SSR grant) and in Association with PLEXIM, Switzerland & Department of Electrical Engineering, NIT Srinagar (J&K)
2	Torque control strategies for an	Online Short Term Training Programme	12/10/2021	UGC-Human Resource Development Centre,

	Open-End winding Induction Motor for Electric Vehicle Applications	on "Latest Trends and Challenges in Electric Vehicle Technology and Battery Management Systems"		JNTUH & Vaagdevi College of Engineering, Warangal
3	DTC Control schemes for Open-End Winding Induction Motor Drives	Online FDP on "Application of Power Electronics in Electric Vehicles and Energy Storage"	16/02/2022	NIT Warangal and NIT Karnataka, in Association with Electronics & ICT Academy, NIT Warangal.
4	MPT Control Strategies for Open-End Winding Induction Motor Drives	Online FDP on "Application of Power Electronics in Electric Vehicles and Energy Storage"	18/02/2022	NIT Warangal and NIT Karnataka, in Association with Electronics & ICT Academy, NIT Warangal.
5	Model Predictive Control Strategies for a Induction Motor Drive	Online FDP on "Trends in Electric Vehicle Design"	24/02/2022	Narayana Engineering College, Gudur
6	Implementation of SVPWM Technique for Open-Loop v/f Control of Open-End Winding Induction Motor Drive using PLECS	Online FDP on "Modelling, Simulation and Control of Advanced Power Converters"	30/03/2022	E&ICT Academy & Department of Electrical Engineering, NIT Warangal in association with GRIE&T, Hyderabad (Sponsored by MeitY, GOI).
7	Programming Enhanced Quadrature Encoder Pulse Module (eQEP)	STTP on "Digital Signal Processor: An Introduction with Code Composer Studio & PSIM Software	24/04/2022	Department of Electrical Engineering, SVNIT Surat
8	Discontinuous Decoupled SVPWM Schemes for a Four-Level Open-End Winding Induction Motor Drive with Waveform Symmetries	Webinar - IEEE PELS/IAS/PES Jt. Chapter, Vizag Bay Section, India	21/05/2022	IEEE PELS/IAS/PES Jt. Chapter, Vizag Bay Section, India

Membership in professional bodies

S. No.	Name of the Academy/Professional Body	Membership No.	Period	
			From	To
1	IEEE Senior Member	90531636	01/01/2022	Till Date
2	IE(I) Member	M-1745632	01/01/2022	Till Date

Teaching**A.Y. 2022-23**

Level	Title of the Course(s) Taught	Course Code	Semester
UG	Network Analysis and Synthesis	EE207	Odd
PG	Modern Instrumentation	ELIC1C02	
UG	Utilization of Electric Energy	EE326	Even
PG	Advanced Embedded Controllers	ELIC2C02	

A.Y. 2021-22

Level	Title of the Course(s) Taught	Course Code	Semester
UG	Utilization of Electric Energy & Electric Traction	EE415	Odd
PG	Microcontroller Based System Design	EL617	
UG	Utilization of Electric Energy	EE326	Even
PG	Advanced Embedded Controllers	ELIC2C02	
	Industrial Robotics	ELIC2E02	

Department/Institute level responsibilities

S.No	Departmental/Institute Activity	Duration	
		From	To
1	Lab-in Charge of DSP Lab	03/09/2021	Till date
2	Lab-in Charge of UG Project Lab	03/09/2021	Till date
3	Lab-in Charge of Advanced Microprocessor Lab	03/09/2021	Till date
4	Member of Department Newsletter	30/09/2021	Till date
5	Member of Department Time-Table Committee	27/12/2021	Till date
6	Member of Department Website Committee	11/11/2022	Till date
7	Co-Chairman of the Society for Automotive Engineers (SAE)	11/10/2021	Till date

Reviewer for the Journals

- IEEE Transactions on Industrial Electronics
- IEEE Transactions on Power Electronics
- International Transactions on Electrical Energy Systems
- Optimal Control Applications and Methods
- IEEE Journal on Emerging and Selected Topics in Power Electronics

Place: Surat

Date: 28/06/2023

Suresh Lakhimsetty