

Faculty Profile

Name of Faculty	Dr. VENKATESHA K
Department	Electrical & Electronics Engineering
Qualification	B.E., M.E., Ph.D.
Designation	Professor
Area of specialization	Power Electronics, Power Quality
Date of Joining BNMIT	04/02/2005
Nature of Association (Regular/Contractual/Adjunct)	Regular
Email ID:	kvenkatesha@bnmit.in kvenkat_eshwar@yahoo.co.in
No. of years of Experience	Teaching: 17.25 years Industry: 2 years



Academic qualifications:

- ❖ Doctor of Philosophy in Faculty of Electrical & Electronics Engineering Sciences for the thesis entitled "**MODELING AND DESIGN OF SINGLE PHASE & THREE PHASE BIDIRECTIONAL AC/AC CONVERTER FOR POWER QUALITY IMPROVEMENT USING FPGA REAL TIME CONTROLLER**" under Visvesvaraya Technological University during March, 2019.
- ❖ M.E. in Power Electronics (2005) with aggregate of **74.96%** [**First class with distinction**] from University Visvesvaraya College of Engineering, Bengaluru, Karnataka.
- ❖ B.E in Electrical & Electronics Engineering](1997), with **73%** [**First class with distinction** from Golden Valley Institute of technology, K.G.F., Karnataka.

Working experience details:

- ❖ Associate Professor, Dept. of Electrical & Electronics Engineering, BNMIT, Bangalore,(2012 to till date).
- ❖ Asst. Professor, Dept. of Electrical & Electronics Engineering, BNMIT, Bangalore, (2008 –2012).
- ❖ Lecturer, Dept. of Electrical & Electronics Engineering,, BNMIT, Bangalore, (2005-2008).
- ❖ Lecturer, Dept. of Electrical & Electronics Engineering,, GVIT, K.G.F., (2001-2004).
- ❖ Undergone Apprenticeship Training in KPTCL, K.G.F., (08/12/1999 to 07/12/2000)
- ❖ Customer Support Engineer, M/s Usha Informatics Pvt. Ltd, Hyderabad, (1998-1999)

Courses taught:

PG Courses:

- (1) Power electronic devices and circuits
- (2) Power Electronics Converters
- (3) Modeling and design of controllers

- (4) Modeling and simulation of power electronic systems
- (5) AC and DC Drives
- (6) Switched mode power supplies

UG courses:

- (7) Basic electrical engineering, B.E. I semester
- (8) Basic Electronics, B.E. I semester
- (9) Logic Design, B.E. III semester
- (10) Digital Signal Design, B.E. III semester
- (11) Network Analysis, B.E. III semester
- (12) Field theory, B.E. IV semester
- (13) Power electronics, B.E. IV semester
- (14) Control Systems, B.E. IV semester
- (15) Transformers & Induction machines, B.E. IV semester
- (16) Management and Entrepreneurship, B.E. V semester
- (17) Transmission and distribution systems, B.E. V semester
- (18) Power system analysis, B.E. VI semester
- (19) Electrical Drawing, B.E. VI semester
- (20) Switch Gear Protection, B.E. VI semester
- (21) Computer techniques in power systems, B.E. VII semester
- (22) Electrical Power Utilization, B.E. VII semester
- (23) Electromagnetic Compatibility, B.E. VII semester
- (24) Estimation, Design & Costing: B.E. VIII semester
- (25) Electrical Power Quality, B.E. VIII semester

Laboratory handled:

PG Courses:

- (1) Drives lab, M.Tech I and II semester

UG Courses:

- (2) Logic Design lab, B.E. III semester
- (3) Electronics Lab, B.E. III semester
- (4) Power electronics lab, B.E. III semester
- (5) Transformer and induction machines lab, B.E. IV semester
- (6) Power system Simulation lab, B.E. VIII semester

Research experience details:

Ph.D:

Title: MODELING AND DESIGN OF SINGLE PHASE & THREE PHASE BIDIRECTIONAL AC/AC CONVERTER FOR POWER QUALITY IMPROVEMENT USING FPGA REAL TIME CONTROLLER

Abstract: The DC chopper basic topologies such as buck, boost, buck-boost & Cuk can be implemented even in both single phase & three phase AC choppers. The PWM based AC choppers operate at high switching frequencies are capable of changing the harmonic profile at both input and load side. The compact and economical power electronic system is obtained by selecting higher switching frequency so that filter component size will be reduced. Modeling, design and simulation of single phase buck boost AC chopper is analyzed for the voltage regulation for fast dynamic response and efficiency of the converter using MATLAB/Simulink software. It is found that the efficiency of the converter with DC snubber is increased than that of using AC snubbers. The trigonometric based fast peak detector is used for voltage sag correction which improves the dynamic performance of the converter that results in high quality output voltage. Simulation and hardware implementation of single phase and three phase buck AC chopper using high frequency four quadrant bidirectional switches connected to inductive loads are carried out for analyzing input power factor, harmonic profile at different switching frequencies and efficiency of the converter. The different control or switching strategies considered are equal pulse width modulation or symmetrical ramp DC PWM (EPWM/SRDPWM) technique, asymmetrical ramp triangular PWM (ARTPWM) technique and asymmetrical sinusoidal PWM (ASPWM) technique that uses unipolar or bipolar triangular signals as carrier waves etc. Modern PWM techniques such as SRDPWM, ARTPWM, ASPWM1 (bipolar triangular waveform) and ASPWM2 (unipolar triangular waveform) are implemented using FPGA real time controller. The converter is analyzed for each PWM techniques with different switching frequency in order to change the harmonic profile for selective harmonic elimination. Asymmetrical PWM techniques offer more THD value than symmetrical PWM techniques. Among the Asymmetrical PWM techniques considered, ARTPWM and ASPWM1 technique gives lesser THD value than ASPWM2 technique. Moreover ASPWM1 technique improves input power factor better than other PWM techniques. Even though SRDPWM technique implementation is easier and simpler for single phase and three phase AC choppers, ASPWM1 technique proves to be the better control strategy than other type with respect to improvement of input power factor, harmonic profile and hence efficiency of the converter. The simulation results obtained using MATLAB Simulink are in good agreement with the hardware results. The simulation and hardware results obtained clearly shows that in order to increase the efficiency of the converter, both input power factor and harmonic profile has to be considered that plays a vital role in designing the circuit for compactness and economy of power electronic systems.

M.E. [Power Electronics]:

Title: FUZZY LOGIC BASED CLOSED LOOP SPEED CONTROL OF SEPARATELY EXCITED DC MOTOR

Abstract: The project involved the design of Fuzzy Logic controller using C programming. The program displays the speed of the machine, and accepts user speed. The input to the fuzzy logic controller is error in speed & rate of change of speed. The o/p is to take care of PWM technique to control the on time of the Chopper switch which in turn varies the output voltage that is to be given to the DC motor. The Chopper is designed for 60watts, 30V, and 2A to vary the voltage from 0V to 30V for DC Motor.

Research projects completed:

Title: Real time detection, measurement & classification of power quality disturbance using GUI & DSP applications

Funding Agency: VTU, Belagavi, Karnataka, INDIA

Amount: 10 Lakhs

Duration: 03 years (Jan 2011 – Dec 2013)

Academic positions and other responsibilities (University level):

- (1) Board of Examiners [BOE] member for Visvesvaraya Technological University, Karnataka from July-2016 to June-2017.
- (2) Video Recording of III semester Lab sessions [Digital Electronics Laboratory] during 11th August to 22nd August, 2016.

Academic positions and other responsibilities (Institute level):

- (1) NBA coordinator for the institute from June-2019 to till date.
- (2) Department coordinator for Engineering Exploration lab [EEL] of first year students.
- (3) Coordinator for Engineering Exploration Lab from June 2019 to till date
- (4) Personality development program (T5) mentor (2017 - Till date).
- (5) Program NBA Coordinator, BNMIT (2017-18, 2018-19)
- (6) Lab Incharge of "Electronics circuits lab" during Odd semester, August-2018
- (7) NAAC Coordinator, BNMIT (2016-17, 2017-18)
- (8) Organizing committee member of faculty development program on "power Quality Issues" during 18-23rd Jan, 2016
- (9) Organizing committee member in IEEE- international conference on power and advanced control Engineering ICPACE-2015 held during 12-14th August, 2015.

Hardware instruments handled/Software's handled:

- ❖ Power Quality Analyzer [PW3198 HIOKI model] for harmonic analysis of three phase and single phase power supply
- ❖ FPGA Spartan-6 kit handled for generating different PWM pulses
- ❖ MATLAB Software package [Simulink & *.m files]

Awards / Achievements / Memberships:

- ❖ Resource person for technical session of Faculty Development Program on "Modern Power Electronic Drives: Design & Future Trends " in BNMIT, Bengaluru, India on 17/01/2018.
- ❖ Resource person for technical session in workshop "Application of MATLAB Simulink & SCILAB for Electrical Sciences" in Global Academy of Technology, Bengaluru, India on 29/01/2018.

- ❖ Best paper award on technical paper " Experimental Analysis of Symmetrical & Asymmetrical PWM based single phase AC chopper for power quality improvement using FPGA real time controller" in IEEE-ICSPACE 2017 held at Global Academy of Technology, Bengaluru.
- ❖ Best Faculty Award by Cognizant during 2016-17
- ❖ Letter of appreciation for teaching from BNMIT for the academic years 2013-14, 2015-16 & 2016-17

Workshops / Seminars organized:

- (1) Convener for 1 week workshop on "Modern power electronics drives: Design and future trends", from 16th to 20th Jan 2018.
- (2) Convener for 1 week workshop on "Role of IT in Power sector" from 9th – 13th Jan 2017.
- (3) Convener for 1 week workshop on "Integration of Green Energy to smart grids – opportunities and challenges", from 11th to 16th July 2016.
- (4) Convener for 1 week workshop on "Recent Trends in Power Quality Issues and mitigation", from 18th - 23rd Jan 2016.
- (5) Member of organizing team for IEEE-International Conference on Power and Advanced control Engineering, ICPACE-2015 held between 12th – 14th Aug 2015 at BNMIT.
- (6) Convener for 1 week workshop on "PLC and SCADA systems" from 19th to 23rd January 2015.

Research publications:

I. National / International Journals:

- (1) Venkatesha K, Vidya H A, "Practical Realization of Three Phase Buck AC Converter Feeding Three Phase Star Connected RL Load using FPGA Real Time Controller", in International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, H7469068819/19©BEIESP, Volume-8 Issue-8, P2985-2990, June 2019
- (2) Amogath, Venkatesha K, "FPGA based speed control of Single Phase Induction motor by using PWM Technique" in International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, ISSN (Print) : 2320 – 3765, ISSN (Online): 2278 – 8875, Vol. 6, Issue 5, May 2017
- (3) Amisha Kumari , Venkatesha K, " Design & Development of Single Phase Multilevel Inverter (MLI) Using Coupled Inductor", in International Journal of Innovative Research in Computer and Communication Engineering ISSN(Online): 2320-9801, ISSN (Print): 2320-9798, Vol. 5, Issue 4, April 2017.
- (4) Venkatesha K, Vidya H A, "Analysis of Symmetrical & Asymmetrical PWM based Single Phase AC to AC Converter for Power Quality Improvement" in International Journal of Research in Engineering and ISSN (Print): 2320 – 3765, ISSN (Online): 2278 – 8875 Vol. 5, Issue 9, Sept-2016.[Impact factor:5.621]
- (5) Venkatesha K, Vidya H A, "Analysis of Symmetrical & Asymmetrical PWM based Three Phase AC to AC Converter for Power Quality Improvement" in International Journal of Research in Engineering and Technology e-ISSN: 2319-1163 p-ISSN: 2321-7308, 332-340, Vol. 5, Issue 8, Aug-2016. [Impact Factor: 3.935]

- (6) Venkatesha.K, Vidya H.A, Priyashree S, Vijay Kumar G, “Experimental Analysis of Single Phase Bidirectional AC Buck Converter for Power Quality Improvement”, in International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, ISSN (Print): 2320 – 3765, ISSN (Online): 2278 – 8875, Vol. 2, Issue 12, December 2013. [Impact factor: 5.621]
- (7) Vidya H.A, Priyashree. S, Venkatesha K, Vijay Kumar. G “Application of Wavelet Transform for analysis and mitigation of Harmonics in Non-linear Loads”, in International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, ISSN (Print):2320 – 3765, ISSN(Online): 2278-8875, Vol. 2, Issue 12, December 2013. [Impact factor: 5.621]
- (8) Venkatesha K, Vidya H A, Vijay Kumar G, “Closed Loop Single Phase Bidirectional AC to AC Buck Boost Converter for Power Quality Improvement”, in International Journal of Engineering Research and Development e-ISSN: 2278-067X, p-ISSN: 2278-800X, www.ijerd.com Volume 7, Issue 11, PP. 35-42, July 2013. [Impact factor: --]
- (9) Venkatesha K, Vidya H A, “Some Investigations on Denoising of Partial Discharge Signals Using Wavelet Transform” for journal IJEEES. [Impact factor:7.04]

II. National / International conference:

- (1) Venkatesha K, Vidya H A, "Experimental analysis of Symmetrical & Asymmetrical PWM based Single Phase AC to AC converter for Power Quality Improvement using FPGA real time controller", IEEE-International Conference on Smart grids, Power and Advanced Control Engineering (ICSPACE2017) during August 17th to 19th, 2017
- (2) Tejas K, Sadasivan V, Venkatesha K, “Single-Phase to Three-Phase Power Converter for Traction Application” national conference on advanced techniques in electrical and electronics engineering, NCATEE-14, SJBIT, Bangalore, India, may, 2014.
- (3) Pavan K, Tejas K, Venkatesha K, “Reduction of Common Mode Voltage in Induction Motor Drives Using Various Scalar Based PWM Techniques” national conference on advanced techniques in electrical and electronics engineering NCATEE-14, SJBIT, Bangalore, India, may, 2014.
- (4) Venkatesha K, Vidya H A, Vijay Kumar G, “Selective Harmonic Elimination of Three Phase Bidirectional AC Buck Converter for Power Quality Improvement”, international conference on advances in power electronics and instrumentation engineering PEIE-2014, Association of Computer Electronics and Electrical Engineering, Chandigarh, India, March, 2014.
- (5) Ramya G Pandith, Venkatesha K, Ahmed Syed, “dv/dt FILTER DESIGN FOR AC VARIABLE FREQUENCY DRIVES”, International Conference on Information & Communication Engineering (ICICE-2013) at BANGALORE organized by Institute for Research and Development (Bhubaneswar), India, June,2013
- (6) Vidya H A, Priyashree S, Venkatesha K, “Harmonic Analysis and its Elimination in Nonlinear Loads Using Wavelet Transform”, International Conference on VLSI, Communication, Advanced Devices, Signals & Systems and Networking VCASAN-2013 in BNM Institute of Technology, Bangalore, India during July 2013
- (7) Anand Kumar, P. Siva Subba Rao, Venkatesha K, “Design and Development of DC-DC Converter System to Drive a PZT Stack Actuator” International Conference on VLSI,

Communication, Advanced Devices, Signals & Systems and Networking VCASAN-2013 in BNM Institute of Technology, Bangalore, India during July 2013,

- (8) Venkatesha K, Vidya H A, "Selective Harmonic Elimination in a single phase AC-AC converter with four quadrant switch realizations", National Conference on Energy Systems and Energy Issues-ESEI-2011, ESEI-E15, BMSCE, Bangalore, during 18-19, Feb, 2011.
- (9) Venkatesha K, Vidya H A, "Improved circuit of buck-boost AC chopper for single phase systems", International Conference on advances in energy conversion technology, MIT, Manipal during 07-10, Jan, 2010.
- (10) Venkatesha K, A Kumar, "Fuzzy logic based closed loop speed control of separately excited dc motor" (Paper ID: FP18) national symposium, 3-4 April 2008. DSCE, Bangalore.
- (11) Venkatesha K, A Kumar, "Implementation of Digital PID For Speed Control of DC Motor", national Conference SJB Institute of Technology, Bangalore.

Invited talks delivered:

- (1) Guest Lecture on "Time varying fields, Uniform plane wave and hazards of electrostatic fields" at Global Academy of Technology on 04th May, 2019 .
- (2) Guest Lecture on "Electromagnetic Field Theory" at Sairam College of Engineering, on 29th May, 2018 .
- (3) Guest Lecture on "Electromagnetic Field Theory" at Sairam College of Engineering, on 7th June, 2017.
- (4) Guest Lecture on "Field Theory" at Sairam College of Engineering, during 11th March, 2016.
- (5) Guest Lecture on "Network Analysis" at Sairam College of Engineering, during 13th November, 2015.
- (6) Guest Lecture on "Field Theory" at Sairam College of Engineering, during 12th march, 2015.
- (7) Technical talk on "Power Quality Management" at DSCE, Dept of Instrumentation Technology during 20th, sept-2010.

Chairmanships at national / International conference / Seminars:

- (1) Session chair for national conference in "Innovative Technologies in Electrical & Electronics Engineering" organized by Dept. of EEE, Sri Krishna Institute of Technology, Bengaluru-560090.

Participation in training courses / Seminars / Workshops:

- (1) Faculty Development program on " Working model on Industry 4.0" at Nettur Technical Training Foundation [NTTF], Bengaluru from 08-07-2019 to 12-07-2019.
- (2) Ten days Internship program on " Industrial Management in the Modern Context" in Minsk state automotive college, Minsk, Belarus, European country educational branch of RIPO, on the basis of centers of excellence in the field of engineering and car service, partners of the organizations "Keller", "Festo", "Siemens", "Belkommunmash", "LSC", "Minsk tractor works", "Minsk Automobile Plant" from 30/07/2018 to 09/08/2018

- (3) Two days workshop on “ Global R&D Summit-2017”, organized by Department of Science & Technology, Government of Karnataka, FICCI at Lalit Ashok, Bengaluru during 6th-7th , April, 2017.
- (4) One Week Faculty Development Programme on “Role of IT in Power Sector” at BNMIT, Bengaluru during 9th to 13th Jan, 2017.
- (5) One Week Faculty Development Programme on “Integration of Green Energy to Smart Grid- Opportunities and Challenges” at BNMIT, Bengaluru during 11th to 16th July, 2016.
- (6) One Week Faculty Development Programme on “Recent Trends in Power Quality Issues and Mitigations in Electrical Systems” at BNMIT, Bengaluru during 18th to 23rd January, 2016.
- (7) National Workshop on “Preparation for Accreditation by NBA” during 3rd to 5th December, 2015.
- (8) One day Faculty Development Programme on “Intellectual Property Rights-Significance for Academia in Business & Research” at BNMIT E-cell in association with Visvesvaraya Trade Promotion Centre, Bengaluru on 20th August, 2015.
- (9) National workshop on “Programmable Logic Controller & SCADA Systems” in association with M/s YOKOGAWA India Pvt. Limited, Bengaluru held at BNMIT, Bengaluru-70 during 19th to 23rd January, 2015.
- (10) National workshop on “Power Quality and Custom Power Devices” at RVCE, Bangalore, during June 3rd to 7th, 2013.
- (11) International workshop on “Power Quality Issues and Challenges” on November 18th-19th, 2011 at CPRI, Bangalore.
- (12) Mission 10X workshop at BNM Institute of Technology, Bangalore, from 19th July to 23rd July, 2010
- (13) National level two days workshop on “Issues in Electromagnetic compatibility” during March, 25-26, 2009 at UVCE, Bangalore-01.
- (14) National level seminar on “Introduction to Research Investigation in Recent years in Electrical & Electronics Engineering” held on 16th march, 2009 at BNMIT, Bangalore-07.
- (15) National level Two day workshop on “Recent Trends in Power Electronics” during 25-26, September, 2008 at UVCE, Bangalore-01.
- (16) National level Two day seminar on “Modern Trends in Power Systems” during 10-11, NOV, 2005 at DSCE Bangalore.
- (17) National level three days workshop on “Power System Simulation Laboratory” held on 29-30 Sept.. & 1st Oct. 2005 at BIT, Bangalore.
- (18) National level two days workshop on “CAD for Electrical Drawing “ held on 13-14 mat 2005 at BIT, Bangalore.
- (19) National level two days workshop on “Teaching Computer Applications to Power Systems Using A Comprehensive and Illustrative Software Teaching Tool-Soft caps”, held on 23-24, 2002 at BVB College of Engineering & Technology, Hubli.
- (20) Teachers Training Program on “Power System Simulation” held on 27-31 march, at SIT Tumkur.

Personal details:

❖ **Date of Birth:** 30/08/1975

- ❖ **Sex:** Male.
- ❖ **Father's name:** Krishna Reddy
Spouse: Sudhamani Venkatesh,
Children: Shivani V Reddy & Yashika V Reddy
- ❖ **Languages Known:** Kannada, Telugu, Tamil and English
- ❖ **Passport Number:** S4833927 (valid till 12th July 2028)
- ❖ **PAN No.:** AEUPV0061L
- ❖ **Aadhar Card No.:** 3470 4624 9858
- ❖ **Interest (Hobbies):** Hobby projects, listening to music

17th, July 2019

VENKATESHA K