PROFILE

<table>
<tr><td>Name of Teaching Staff</td><td colspan="3">Dr. A. Usha</td><td rowspan="3">  </td></tr>
<tr><td>Designation</td><td colspan="3">Professor</td></tr>
<tr><td>Department</td><td colspan="3">Electrical & Electronics Engineering</td></tr>
<tr><td>Date of Joining the Institution</td><td colspan="4">21-11-1991</td></tr>
<tr><td rowspan="2">Qualifications with Class/Grade</td><td>UG</td><td>PG</td><td colspan="2">PhD</td></tr>
<tr><td>FC</td><td>FC</td><td colspan="2">NA</td></tr>
<tr><td rowspan="2">Total Experience in Years</td><td>Teaching</td><td>Industry</td><td colspan="2">Research</td></tr>
<tr><td>30Yrs</td><td>---</td><td colspan="2">10</td></tr>
<tr><td rowspan="2">Papers Published</td><td colspan="2">National</td><td colspan="2">International</td></tr>
<tr><td colspan="2">01</td><td colspan="2">12
(Web of Science Journals: 02)</td></tr>
<tr><td rowspan="2">Papers Presented in Conferences</td><td colspan="2">National</td><td colspan="2">International</td></tr>
<tr><td colspan="2">01</td><td colspan="2">28</td></tr>
<tr><td rowspan="2">PhD Guide? Give field & University</td><td colspan="2">Field</td><td colspan="2">University</td></tr>
<tr><td colspan="2">Smart Sensors and Nanotechnology</td><td colspan="2">VTU</td></tr>
<tr><td rowspan="2">PhDs / Projects Guided</td><td colspan="2">PhDs</td><td colspan="2">Projects at Masters level</td></tr>
<tr><td colspan="2">05</td><td colspan="2">36</td></tr>
<tr><td>Books Published / IPRs/ Patents</td><td colspan="4">Patent AWARDED on July 2021 FROM July 2012 for a duration of 20 Years for Research Work Results carried out @ CeNSE, IISc, Bengaluru.</td></tr>
<tr><td>Professional Memberships</td><td colspan="4">ISTE Life Member, IEI & ISSS Life Member, IEEE SSIT-Member</td></tr>
<tr><td>Consultancy Activities</td><td colspan="4">---</td></tr>
<tr><td>Awards</td><td colspan="4">Best Paper Awards – 03, Patent Awarded - 01</td></tr>
<tr><td>Grants fetched</td><td colspan="4">AICTE, MODROBS-Rs. 9.6/- Lakhs (Financial year 2000-2001 and 2001-2002) and
AICTE (RPS) Research Proposal: Submitted to AICTE-Delhi during February – 2019 & Accepted.</td></tr>
<tr><td>Interaction with Professional Institutions</td><td colspan="4">Research Activity in association with
Materials Engineering Department, and Centre for Nano -Science and Engineering (CeNSE), IISc, Bangalore.</td></tr>
</table>

Achievements since date of joining:

Served as Head of Instrumentation Technology Dept. for a duration of 8 YEARS.

- **PATENT Awarded for Research work results from July 2012 for a duration of 20 YEARS.**
- **Obtained AICTE, MODROBS and TAPTEC funds (Twice).**
- **As chief coordinator for VTU exams (2 times).**
- Active involvement in TEQIP Phase I & II activities.
- Assisted in Establishing R&D and PG Lab for Electrical & Electronics Engineering Department.
- **As PG (Power-Electronics) Coordinator since 2006 till date and served as NBA COORDINATOR for PG Program from 2008 to 2018.**
- Research activity tied up with Centre for Nano Science and Engineering (CeNSE), IISc, Bangalore.
- Research work results applied for PATENT during July 2012 and published on web June 2014 and applied for examination, July 2015.
- Served as Head of Instrumentation Technology Dept. for the duration of 8 years (January 2000-October 2007).
- As team lead to initiate PROPEL LAB V: Systems Design (PBL) Laboratory for UG Students.
- Initiated MOU with CENTUM Electronic Ltd., Robert Bosch & Cranes (TI) to carry out UG/PG Projects, Internship, training programs, workshops, symposium, technical events, fest etc. and also collaborative research.
- As BOE Member for Electrical board at P.E.S Mandya.
- As Expert member for Research project funded by NRB-DRDO at BMSIT, Bangalore.
- TPC (Technical Program Committee) member for International Conference on Modeling Signals and Bio-processing (ICMSB), July 2016.
- TPC (Technical Program Committee) member for IEEE II International Conference on Emerging Research in Electrical, Electronics & Computer Technologies (ICERECT), December 2015.
- Delivered an Extension lecture on "Micro and Nano Systems" at P.E.S. College of Engineering, Mandya on November 3, 2015.
- Delivered an Extension Lecture on "Smart Sensors and Applications" at Vidya Vikas Trust, Bangalore on 10th January, 2016.
- Obtained best paper award for a research paper, "Carbon Nanotube Based Surface Acoustic Wave Gas Sensor for Condition Monitoring of Gas Insulated Switchgear Systems" in the IEEE International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT), held at PES College of Engineering, Mandya during 17-19, December 2015.

FD	R&D Projects	No. of Journal Publication	PATENT	Books/ Monograph	Conference/ Seminars	Extra-curricular activities	Admin.
Ph.D	**AICTE- 01 MODROBS:02 AICTE (RPS) Research proposal :01 (under**	**06**	**01**	**------**	**25**	• Served as B.M.S Educational Trust Ladies Hostel Warden – 2004-2005. • Community	**Served as HOD of Instrumentation Technology Department for 8 years (January 2000-**

	progress)					and social service for blind students at Vidya-Vikas Trust and Matruchaaya, B.S.K II Stage, Bangalore – 560070..	**October 2007.)**

Performance Appraisal since Academic year 2007-2008

Year	Subjects handled for M. Tech Power-Electronics Program since Academic Year 2007-08 till date.			
	Odd Semester	Pass percentage	Even Semester	Pass percentage
2007-08	Digital Measurements Embedded system design	100 100	Micro-controllers (UG Course) Real Time Embedded Systems	81 89
2008-09	Digital Measurements. Embedded system design.	100, 100	Micro-controllers (UG Course) Power Electronic System design using ICs	85 100
2009-10	Real time embedded system. Digital Measurements. Embedded system design.	89 100 100	Power Electronic System design AC-DC Drives	100 94.5
2010-11	Real time embedded system. Digital Measurements, Embedded system design	89 100 94.5	AC-DC drives Power Electronic System design using ICs	100 100
2011-12	Real time embedded system. Digital Measurements, Embedded system design	100 100 100	AC-DC drives Power Electronic System design using ICs	100 100
2012-13	Embedded system design Power Supply Systems	100 100	AC-DC Drives Power Electronics System Design using ICs.	100 100

2013-14	Embedded system design Power Supply Systems	100 100	AC-DC Drives Power Electronics System Design using ICs.	100 100
2014-15	Embedded system design	100	AC-DC Drives Power Electronics System Design using ICs.	100 100
2015-16	Embedded system design	100	AC-DC Drives Power Electronics System Design using ICs	100 100
2016-17	Embedded system design	100	AC-DC Drives Power Electronics System Design using ICs	100 100
2017-18	Embedded system design	100	AC-DC Drives Power Electronics System Design using ICs	100 100
2018-19	Embedded system design	100	AC-DC Drives Power Electronics System Design using ICs	100
2019-20	Embedded system design	100	AC-DC Drives Power Electronics System Design using ICs	100

Projects Guided for P.G Power Electronics Students	
2007-2008	1. CAN Enabled Intelligent Motor Drive (BLDC Motor). 2. Single Phase Inverter with wireless LCD Display. 3. PLC based coal handling plant for NTPC.
2008-2009	1.High Voltage Power Supply for TWT Modulator 2. Identification of common mode voltage in PWM inverter fed Induction motor drives.
2009-2010	1. Development of high frequency multiple output forward converter with MAG-AMP Regulator 2. Data Acquisition and design of signal conditioning circuit for low power signals. 3. Advanced Solar Array power simulator.
2010-2011	1. Design and Development of Low Power Signal Conditioning and Processing for Real Time Applications using LABVIEW 2. Multi-Output Fly back Converter with Current Mode Control.
2011-2012	1.Solar Power Inverter 2. Design and Implementation Of Universal Input Single Stage HPF Power Supply For HB-LEDs Based On Buck Fly-back Converter

2012-2013	1. Design and Implementation of 350W Forward Converter with Current Mode Control at CENTUM Electronics Ltd. 2. Design and Development of Low Power Signal Conditioning Electronics Using MSP-430.
2013-2014	1. 150 WATT Single Output Forward Topology DC-DC Converter with Wide Input Range. 2. ARM Based Remote Control Car Unit for Search Missions. 3. Simulation & Implementation of Reconfigurable Solar Converter.
2014-2015	1.Z-Source Inverter Fed Induction Motor Drive for Renewable Energy Applications. 2.8.1 W Flyback DC-DC Converter with Post Regulators and Delayed Outputs.
2015-2016	1. Design & Implementation of 8.1 watt Quad Output Fly-back Converter for Space Applications. 2. Bridgeless PFC Buck-Boost Converter for BLDC Motor Drive.
2016-2017	1. Design and implementation of interleaved flyback converter with lossless snubber and current mode control for satellite cmmunication. 2. Design and implementation of ZigBee based home automation system for smart lighting control using MeshBee JN5168 controller. 3. Design and development of power supply unit for high frequency transceivers.
2017-2018	1. Design and Implementation of 60W Multiple Output Interleaved Flyback Converter with Post Regulators. 2. Design and Mathematical Modelling of Permanent Magnet Synchronous Generator.
2018-19	1. Design Of Two Stage High Voltage Battery Charger Using Active Clamp Flyback Converter 2. Power Management Validation For System On Chip 3. Design And Implementation Of Sepic Converter For Automotive Applications.
2019-20	1. Design & Development of High Efficiency Synchronous Buck Converter using LT-38451FE PWM Controller for 100V Input Bus. 2. Design & Development of Digitally Controlled Programmable DC-to-DC Converter. 3. Design & Development of Three Phase Inverter for Electric Vehicle Applications.
2020-21	1. Design and Development of Smart Charger for Automotive Application 2.

Workshops/Training Programs/Winter School/Summer School/Faculty Development Program (FDP) Organized/Participated since 2008 till date

- **Participated**

1. Attended one week workshop on "Embedded Solutions Engineering and LabVIEW" at UVCE, Bangalore during 09 -`14 March 2009.
2. Attended Two Day Training Program on "Virtual Instruments LabVIEW Software" at B.M.S.C.E Bangalore during 22-23 December 2008.
3. Attended two day workshop on "Research Studies" at MSRIT, Bangalore May 2009.
4. Attended "MATLAB Simulink Seminar" at Lee Meridian, Bangalore, and July 2009.
5. Attended two day workshop on "Micro & Smart Systems Technology" at MSRIT, Bangalore, and July 2009.
6. Participated in the Three Day Seminar on "Embedded OS and Microcontrollers" at MSRSAS, Bangalore, August 2009.
7. Attended ARM Seminar on "Embedded Controllers" at Leela Palace, Bangalore, September 2009.
8. Participated two day workshop on 'Low power Embedded System Design using MSP 430 Microcontroller' at BMSCE, organized by Dept. of TCE on 01-02, May 2010.
9. Attended one day Workshop on "Mentoring and Counseling of Educational Institutions" on 8th June 2010, BMSEC, Bangalore.
10. Participated in the International Conference on "Signal Processing & Applications" at IISC during 18-21, July 2010.
11. Participated in the Winter School Programme on "Nano-Fabrication Technologies" at Centre for Nano-Science and Engineering , IISc, Bangalore during January (3-8), 2011.
12. Participated in the Hands-on-Training Workshop on "Nano-Electronics fabrication Techniques"at Centre for Nano-Science and Engineering , IISc, Bangaloreduring April 25th - May 5th 2011.
13. Participated in the International Conference on "Smart Materials, Structures and Systems", ISSS at IISc, Bengaluru during 4 – 7 January 2012.
14. Participated in the CoreEl Faculty Development Program on "Essentials of FPGA Design & Verilog HDL", at CoreEl Technologies Pvt. Ltd, Bengaluru during 16 – 18 December 2013.

15. Participated in the TEQIP-II Sponsored, Two Day Faculty Development Program on "Outcome Based Education – Innovative Classroom Practices", at B.M.S.I.T, Bengaluru during 18-19, September 2014.
16. Participated in the Two Day Workshop on "Sustainable Technologies for Educational Campuses", at IEEE SSIT ES Joint Bengaluru chapter in association with NIAS & IEEE-IISc Student Branch during 07-08 November 2014.
17. Participated in the One Day Workshop on "Industry Academia Partnership", as part of Pre-Conference Activity of ICTIEE 2015 Jointly by B.M.S.C.E, Bengaluru and IUCEE on 06thJanuary 2015.
18. Participated in the One Day Workshop on "Technology a Generation Ahead", conducted by CoreEL Technologies as part of Pre-Conference Activity of ICTIEE 2015 Jointly by B.M.S.C.E, Bengaluru and IUCEE on 05th January 2015.
19. Participated in the TEQIP-II Sponsored, One Day Interactive Training Program on "Sustainability and Social Innovation", at B.M.S.C.E, Bengaluru during May 2015.
20. Participated in the TEQIP II Sponsored One day Workshop on "Embedded Systems Software Testing : Robotics Design and Mobile Phone Design" on 08th October 2015 organized by TCE Department at B.M.S.C.E, Bangalore.
21. Participated in the One Day Workshop on Industry-Academia Interaction on 10th October 2015 jointly organized by IEEE-PES Bangalore Chapter and EEE Department at B.M.S.C.E, Bangalore.
22. Participated in the Four Day Workshop on "Micro grids - Classification, Implementation and Recent Trends" from 07-12-2015 to 10-12-2015 organized by IIIC Cell, TEQIP Phase II and EEE Department at B.M.S.C.E, Bangalore.
23. Participated in the AGM of IEEE-SSIT at Nagarjuna College of Engineering and Technology, and consequently elected as Co-Chair for this academic year 2019-2020.
24. Participated in the TEQIP III Sponsored Two Days Hands-on Workshop on " Neural Networks Algorithm for Bio-medical Applications" on 18th & 19th March, 2019 @ Dept. of Medical Electronics & EEE, B.M.S.C.E, Bengaluru.
25. Participated in the AICTE sponsored training program for experts at Hindustan College of Academy, Chennai on 24th Feb 2020.

- **Organized**

1. Two-Day Faculty Training Programme on "Embedded Control System Design using LabVIEW" during March (18-19), 2011 under IEEE / IET BMSCE Chapter.
2. Organized two week training program on "Humanity & Social Sciences" during 12-26 July 2011.
3. Organized two day Symposium on "MEMS, OPTICAL MEMS & NANO ELECTRONICS" during 14 – 15 October 2011 in association with IISC MEMS & Nano-Centre (CeNSE).
4. Organized two day "Sir.M.Vishweshwaraiah Extension Lecture series" during 22 - 23 February 2012.
5. Organized Nine day "Value added course on Advanced C Programming" during 2-11 July 2012.
6. Organized Four day "Training Program on MATLAB Simulation and Applications" during 27-30 September 2012.
7. Organized One day Workshop on "Practical Approach to Programming Techniques"during4th November 2012.
8. Organized Nine day "Refresher course on Applied Mathematics" during 01-08March 2013 at B.M.S.C.E, Bangalore.
9. Organized TEQIP – II Sponsored One week Training Program on "LabVIEW and Applications" during 16-22, January 2014.
10. Organized TEQIP – II Sponsored One week Workshop on "Real Time Signal Processing" during 10-15 February 2014.
11. Organized TEQIP – II Sponsored One week Workshop on "Industrial Automation and Control" from 26thJune to 02nd July 2014.
12. Organized one month "Value added course on Project Based Learning (PBL) using UTLP Kits" during 01-30 June 2015.
13. Organized Two Day Workshop on "FPGA Design Flow using Xilinx" during 10-11September 2013.
14. Organized the Inaugural Function for "PROPEL LAB – V on Systems Design" in association with WIPRO-Mission 10X Technologies Learning Centre at B.M.S.C.E, Bangalore on 2nd March 2015.

15. Volunteered the International Conference on "Transformation in Engineering Education" organized jointly by B.M.S.C.E, Bangalore and IUCEE during 06-08 January 2015.

16. Organized TEQIP – II Sponsored One week Faculty Development Program on "Design, Analysis and Implementation of Power Electronic Circuits" from 20thJuly to 24thJuly 2015 at B.M.S College of Engineering, Bangalore.

17. Convened One Day "South Zone Regional Level Project Contest; State Level UTLP based Project Competition", in association with WIPRO Technologies, Bangalore and jointly organized by EEE Dept. & TCE Dept. under IIIC Cell, TEQIP PHASE II, at B.M.S.C.E, Bangalore on 18th January 2016.

18. Convened Two week "Value Added Course on UTLP Kits through PBL" as a PROPEL Lab V Initiative and jointly organized by EEE Dept. & TCE Dept. under TEQIP PHASE II, at B.M.S.C.E, Bangalore from 26th May to 09th June 2016.

19. Convened TEQIP II Sponsored One Week Workshop on "Advances in Power Electronics & Drives" organized by Department of Electrical & Electronics Engineering at B.M.S.C.E, Bangalore from 25th to 29th July 2016.

20. Convened TEQIP II Sponsored One week Finishing School on "Power Electronics & Drives – Design Challenges & Issues" from 27th February to 3rd March 2017.

21. Organized Two Day Workshop on "Power Electronics Circuits & Systems – Design Challenges & Issues" on 29th & 30th March 2019 @ EEE Dept., B.M.S.C.E, Bengaluru.

22. Organized Five Day-Online Workshop on "Design, Analysis and Application of Power Electronics Converters" from 11th to 15th May 2020 in association with IEEE PELS & IES Bangalore Chapter & supported by IEEE-SSSIT-ES AND IEEE-PES Student Chapter, @ EEE Dept., B.M.S.C.E, Bengaluru.

23. Organized Five Day Online Hands-on Workshop on "Simulation tools for Power converters and applications" from 27th to 31st July 2020 in association with IEEE PELS & IES Bangalore Chapter & supported by IEEE-SSSIT-ES AND IEEE-PES Student Chapter, @ EEE Dept., B.M.S.C.E, Bengaluru.

- **Research Guidance**

Guiding FIVE research Scholars:

1. **Smt. Suma Umesh: Assistant Prof., BMSIT, Bangalore, in the area of Smart Sensors & Nanotechnology affiliated to VTU - Belgaum.**
2. **Smt. Shobha K.P, Assistant Prof., U.V.C.E, Bangalore, in the area of Power Electronics & Renewable Energy affiliated to VTU – Belgaum.**
3. **Ms. Anisa Aftab, NDF Research Scholar in the area of Smart Sensors carrying out research from September 2018.**
4. **K. Lokeswara Rao, Asst Prof., EEE Dept., GITAM SCHOOL OF TECHNOLOGY, Bengaluru in the area of Power Electronics & Hybrid Microgrid", affiliated to VTU – Belgaum.**
5. **Sujatha. B.C, Associate Professor, U.V.C.E, Bangalore, QIP Research Scholar in the area of Power Distribution & FACTs Controllers carrying out research from August 2020.**

- **Research Projects**

1. **AICTE-MODROBS: Rs 5.0/- Lakhs during 2000-2001 to set up Microcontrollers Laboratory for Instrumentation Technology Dept.**
2. **AICTE-MODROBS: Rs 4.6/- Lakhs during 2001-2002 to set up DSP Laboratory for Instrumentation Technology Dept.**
3. **DST-SATHI Research Proposal recently (December–2021) submitted in the domain of Electric Vehicles for an amount of Rs 3.9 Crores.**

Publications

- ## Patent Awarded

Patent (Indian) awarded on 2nd July 2021 bearing Application Number: 2859 for a duration of 20 years since July 2012.

Title of the Invention: "Smart sensor based on conducting polymers (PANI) and nano particulates for biological real time Applications".

- **National/International Journals**

1. "Design of Biosensor for Leukocyte counts for Real Time Applications using Conducting Polymers and Nano-composites.", NAROSA Publications Journal, ISBN: 978-81-8487-160-9, pp (108-111), January 2011.
2. "Optimized Design of Biosensor using Conducting Polymers and NANO-Composites", IJEST (International Journal of Engineering, Science and Technology) Journal: ISSN: 0975-5462: pp (3392-3403) Vol. 3 No. 4, May 2011.
3. "Design and Development of Bio-Signal Conditioning and Processing Electronic System using Mixed Signal Processor", International Journal of Bio-Sensor & Bio-Electronics: ISSS: Vol.1 No.3, 2011.
4. "Design and Development of Bio-Signal Conditioning and Processing Electronic System by Employing AD-549 and LabVIEW", Springer LNEE (Lecture Notes in Electrical Engg.), Online ISBN 978-81-322-1157-0; pp (789-799) Vol. 248; series ISSN 1876-1100, January 2014.

5. "Design & Development of Low Power Signal Conditioning & Processing Electronic System using TI-OPA4131 and MSP430", International Journal of Innovative Research in Advanced Engineering (IJIRAE) ISSN: 2349-2163, pp (196-204), November 2014.

6. "Design and Development of ARM Based Remote Control Car Unit for Search Missions", International Journal of Advance Research and Innovation, Volume 3, Issue 2, pp (398-401) ISSN 2347 – 3258, June 2015.

7. "Design and Development of Digitally Controlled Programmable DC to DC Converter", International Journal of Engineering Science Technology and Research (IJESTR), Volume – 5, Issue – 3, 5th June – 2020, pp (01-05), ISSN: 2456 – 0464.

8. "Design and Simulation of Novel Five-Level Inverter and Comparative Study with Transistor Clamped Inverter", International Journal of Engineering Science Technology and Research (IJESTR), Volume – 5, Issue – 4, September – 2020, ISSN: 2456 – 0464.

9. "Design and Development of Multiple Stage High Efficiency Synchronous Buck Converter System", published by the Grenze Scientific Society and is available in the GRENZE International Journal of Engineering and Technology (GIJET), January 2021.

10. “Cabonaceous ZnO nanocomposite for sensing of H2S at sub-ppm concentrations” , published by Taylor & Francis in the Fullerenes, Nanotubes and Carbon Nanostructures Journal (Web-of-Science) on 6th March 2021 with an Impact Factor of 1.68. **(WEB OF SCIENCE) Journal.**

11. “Design and Development of Smart Charger for Automotive Application” at 3rd International Conference on Inventive Computation and Information Technologies ICICIT 2021 during 12-13 August 2021, RVS Technical Campus, Coimbatore, INDIA and published in the Book Chapter: Springer, Lecture Notes on Networks & Systems **(SPRINGER-LNNS October-2021).**

12. “Design & Implementation of 165 W Current fed Push Pull Converter for Military and Space Applications”, at 1st International Symposium on Sustainable Energy and Technological Advancements (ISSETA 2021) organized by Department of Electrical Engineering, National Institute of Technology, Meghalaya, Shillong, India during 24-25 September 2021 and published in the Book Chapter: **SPRINGER-ISSETA December-2021.**

13. “Design & Implementation of Servo-Mechanism System for Antenna Positioning Application” published in Zeichen UGC- Group II Journal , ISSN NO: 0932-4747; Volume 7, Issue 10, November - 2021.

- ## National/International Conferences

1. “Design of BIO-SENSOR for Leukocyte counts for Real Time Applications Using Non-Invasive Technique”at 1st National Conference, TACT-09 N.I.T, Himachel-Pradesh, H.P, March, 2009.
2. “Design of Bio-Sensor for Leukocyte counts for Real Time Applications Using Conducting Polymers and Nano-composites.” IEEE Sponsored International Conference on Electronic Design & Signal Processing, ICEDSP– 09, M.I.T, Manipal, 10-12 December, 2009.
3. “Synthesis and Characterization of Sensor for Biological Real Time Applications UsingConducting Polymers, Nano-composites and Signal Processing Technique” at 4th International Conference, on Computer Applications in Electrical Engineering and Recent Advances, CERA-2009, I.I.T, Roorkee, 19-21, February 2010.
4. “Design of Smart Sensor for Biological Real Time Applications Using Conducting Polymers, Nano-composites and Digital Signal Processing Technique.” at 16th International

Workshop/Conference, on Physics of Semiconductor Devices (IWPSD-2011), at I.I.T, KANPUR, 19-23, December 2011.

5. "Design and Development of Bio-Signal Conditioning and Processing Electronic System by Employing AD-549 and LabVIEW",at 1st International Conference, on Emerging Research in Electronics, Computer Science and Technology (ICERECT- 2012), at P.E.S.C.E, MANDYA, 21-22, December 2012.

6. "Brushless DC Motor Control using DSPIC & CAN", 2nd National Conference on WOC 18-19 December 2008 at PEC, Chandigarh.

7. "Design and development of PLC based coal handling plant for industrial applications" Advances &Research in Electrical System Technology(AREST-11) 23rd-24th April 2011, NIT Jaipur.

8. "Bio –Signal conditioning & processing for real time applications using digital signal processor", National Conference on Energy Systems and Energy Issues, 18th-19th Feb 2011, BMSCE, Bangalore.
9. "Design, analysis and simulation of portable solar power inverter", Oral presentation at TI India Educators International Conference on April 4-5, 2013 at NIMHANS convention center, Bangalore.
10. "Design and Development of Advanced Solar Array Power simulator for Space Craft Applications", Oral presentation at National Conference on 20-21, May 2013 at UBDT, Davangere.
11. "Design and Development of Miniaturized 80 Watt Resonant Reset Forward Converter for Military Applications", 2nd International Conference on Advances in Energy Conversion Technologies (ICAECT 2014) on 23-25, January 2014, at M.I.T Manipal.
12. "Design and Development of high frequency 360 watt RCD clamp forward converter for radar application", International conference on advances in electronics computers and communication (ICAECC-2014) during October 2014 at Reva institute of technology , Bangalore.
13. "A feed forward voltage mode controlled ZVS based phase shifted 300W full bridge DC-DC converter for military application", IEEE International Conference on Power and

Advanced Control Engineering 2015 (ICPACE 2015), August 2015 at BNMIT, Bangalore.

14. "Active Power Factor Correction Technique for Single Phase Full Bridge Rectifier", 2nd International Conference on Advances in Energy Conversion Technologies (ICAECT 2014) on 23-25, January 2014, at M.I.T Manipal.

15. **"**A Novel MEMS Sensor for OnlineHealth Monitoring of Gas Insulated Switchgear Systems**",** IEEEInternational Conference on Power and Advanced Control Engineering 2015 (ICPACE 2015), August 2015 at BNMIT, Bangalore.

16. "Carbon Nanotube Based Surface Acoustic Wave Gas Sensor for Condition Monitoring of Gas Insulated Switchgear System", IEEE International Conference on Emerging Research in Electronics and Computer Technologies (ICERECT 2015) at PESCE, Mandya from 17th to 19st December 2015 and also **obtained best paper award.**
17. "Design & Development of Configurable Solar Converter System", 3rd IEEE International Conference on Electrical Energy Systems (ICEES-2016), 17-19 March 2016 at SSN College of Engineering, Chennai.
18. "Design & Implementation of Quad Output Fly-back Converter for Space Applications" 3rd IEEE International Conference on Electrical Energy Systems (ICEES-2016), 17-19 March 2016 at SSN College of Engineering, Chennai.
19. "Design & Simulation of Bridgeless PFC Buck Boost Converter Fed BLDC Motor Drive", IEEE International Conference on Innovations in Power and Advanced Computing Technologies, IPACT – 2017 ON April 2017 at VIT University, Tamilnadu State, India.
20. "Design and Implementation of Pulsed Output Interleaved Fly-back converter with Lossless Snubber and Current Mode Control", International Conference on Smart Grids, Power and Advanced Control Engineering (ICSPACE 2017), at the Global Academy of Technology, Bangalore, India from 17-19 August 2017 and also **Won best paper award.**

21. "Design and implementation of ZigBee based Home-Automation system for smart lighting control using MeshBee JN5168 controller", International Conference on Smart Grids, Power and Advanced Control Engineering (ICSPACE 2017), held at the Global Academy of Technology, Bangalore, India from 17-19 August 2017.

22. "A power electronic design approach to a Power Supply Unit for a 1kW High-Frequency Transmitter in Naval Applications", IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI), Saveetha Engineering College, Chennai, Tamilnadu from 21-22 September 2017.
23. "Design and Implementation of Multiple Output Interleaved Flyback Converter with Post Regulators", in the third IEEE International Conference on Electrical, Computer & Communications Technologies", 20-22 Feburary 2019 @ Coimbatore, Tamilnadu, India.
24. "Design and Implementation of MPPT based Synchronous Buck Converter for Solar Charge Controller", in the PETPES 2019 International Conference @ NITK, India from 29-31, August 2019.
25. "Design and Simulation of a Single Stage Control Strategy for Power Factor Correction based on Soft Switched Flyback Converter", at the 16th IEEE: INDICON 2019, India Council International Conference held in Rajkot, Gujarat from 13-15 December 2019.
26. "Ni-Substituted ZnO Carbonaceous composite prepared by inert-ambient Pyrolysis for high – selective SO_2 sensing", Web International Conference on Accelerating Innovations in Material Science @ B.M.S.I.T & M, Bengaluru, during August 04-07, 2020 Karnataka, INDIA .
27. "Design and Development of Multiple Stage High Efficiency Synchronous Buck Converter System", at Fifth International Conference on Advances in Recent Technologies in Electrical and Electronics – ARTEE 2020 jointly organized by the IDES & Association of Computer Electrical Electronics and Communication Engineers (ACEECom) held during 29-30, October 2020: Bhopal, INDIA.
28. "Design and Development of Smart Charger for Automotive Application" at 3rd International Conference on Inventive Computation and Information Technologies ICICIT 2021 during 12-13 August 2021, RVS Technical Campus, Coimbatore, INDIA.
29. "Design & Implementation of 165 W Current fed Push Pull Converter for Military and Space Applications", at 1st International Symposium on Sustainable Energy and Technological Advancements (ISSETA 2021) organized by Department of Electrical Engineering, National Institute of Technology, Meghalaya, Shillong, India during 24-25 September 2021.

Areas of general expertise

- General education curriculum: Actively involved in framing the Engineering Curriculum for UG Program since 2010 – 2011 academic year. Also involvement in defining and revising curriculum for PG Programs for VTU, Belgaum and for Autonomous M. Tech; Power Electronics Program since 2016 till date.

- Critical thinking and analysis: Capable to think critically and solve engineering problems, and arrive at optimal solutions after considering societal & environmental factors. Analysis of complex engineering problems to conduct research in a theoretical and practical context.

- Technical competence: In the domain of Power Electronics, AC-DC Drives, Power Electronics System Design using ICs, Microprocessors, Microcontrollers, Digital System Design, Embedded system Design, System-on Chip, Micro & Nano Systems, Smart Sensors, Biosensors, Conducting Polymers and Nanotechnology (gold nano-composites).

- Communication: Communicate effectively with the students, engineering community and society at large and able to write effective reports for presentations by adhering to appropriate standards. Also capable to instruct and motivate the students to engage in life-long learning for better solutions of the society.

- Multidisciplinary research: In recent days, inter disciplinary research is state of the art. It is essential to provide optimized solutions for the real time problems. Research scholars and PG Students must be able to address and find simple solutions for the practical problems of the society by engaging themselves in multidisciplinary research for betterment of this mankind.

  In this view, the research work carried out by our team provides an opportunity and contribute positively for infants and aged persons of this society for testing blood samples using micro-liters of blood sample (5 to 6 micro-liters), almost similar to non-invasive technique.

  Further capable to demonstrate principles and apply new innovative technique to upgrade the existing topology in respective discipline and also multidisciplinary environments.