



Prof. (Dr.) Sanjiv Kumar

Contact Information

Senior Member (93118684), IEEE, Fellow (F-501546) IETE, Ph.D. (IITR)
Coordinator HRD Cell
Associate Dean, School of Engineering
Professor, Electrical Engineering Department, SoE
Harcourt Butler Technical University
Nawabganj, Kanpur-208002, U.P., INDIA
Mobile: +91-7081300678; +91-9839242490
Email: sanjiv.iitr@gmail.com, skumar@hbtu.ac.in

Employment:

Professor, Electrical Engineering Department, Harcourt Butler Technical University, Kanpur, India (From 12 February 2023 to till date)

Associate Professor, Electrical Engineering Department, Harcourt Butler Technical University, Kanpur, India (From 20 September 2019 to 11 February 2023)

Assistant Professor, Electrical Engineering Department, Harcourt Butler Technical University, Kanpur, India (From 12 February 2007 to 19 September 2019)

Technical Executive, Indo-Canadian Consultancy Services, Noida, India (From 14 July 2006 to 05 February 2007)

Electrical Engineer, EMA India Ltd. (An Indo-German Collaboration), Kanpur, India (From 02 December 2002 to 24 July 2004)

Marketing Executive, Global Elec-Tech Ltd., New Delhi, India (From 01 March 2001 to 25 September 2002)

Education:

Doctor of Philosophy (Ph.D.), from Indian Institute of Technology, Roorkee, India, in 2016

Thesis Title: Performance Enhancement of Multilevel Inverter for Induction Motor Drive

M.Tech., Electrical Engineering with specialization in Power Apparatus and Electric Drives, from Indian Institute of Technology, Roorkee, India, in 2006 with 8.15 CGP

Dissertation Title: Simulation and Experimental Validation of Multi-Pulse AC/DC Converter for Medium Voltage ASD's

B.E., Electrical & Electronics, from M.J.P. Rohilkhand University, Bareilly, India, in 2000 with First Division.

Award /Certificate/ Achievements:

Best All Rounder of the Branch Electrical And Electronics during B.E.

Councilor of Govind Bhawan, Indian Institute of Technology, Roorkee, India during 2004-2005.

Secured 99.09 percentile, AIR 162 in GATE 2003

Industrial Exposure:

Configuration of Siemens DCS system for captive power plant of 2x23 MW, looked Hydro project of 2x96 MW at Manaali, India.

Configuration of automation system with PLCs of different makes like *MITSHUBISHI, MESSUNG, ASIA AUTOMATION, ALLEN BRADLEY PLC*, Beijer *OP's* etc..

Configuration of *SCADA (WINCC)* system for various machine tools.

Commissioning and Configuration of Machine Controls with latest CNCs from *SIEMENS like 802D, 810D and FANUC 0TD, Oi-TA, Oi-TB Series* ranges.

Development of Software for Machine Controls using *SIMATIC S7, FLADDER, FEPTLADDER, MEDOC, GPPW, PCIN, E-Designer, V3.1 Programming Tool PLC802* etc..

Commissioning and trouble shooting of various *AC Variable Frequency & Servo Drives* of *SIEMENS, ALLEN BRADLEY and TELEMECHANIQUE* etc..

Commissioning, Servicing and Designing of Static type Medium Frequency Converters utilizing *High Power Rectifier, Inverters* utilizing state of the art *IGBTs* and *high speed Thyristors*.

Very much conversant with State of the art Power Devices and Control Electronics, various Feedback Devices like Encoders, Temperature Controllers, Sensors, Techo-generators, Signal Isolators etc..

Testing and Calibration of various Electronics PCBs used in Industry.

Preparation of Costing and BOM for New Projects.

Research Interest:

Multi-Level Inverters, Open-end Winding Induction Motor Drive, High Power Converters, Power Electronics, Industrial Electric Drives, Microprocessor Control Electric Drives, Active Power Filters

Teaching Interest:

At Undergraduate Level: Power Electronics, Microprocessors, Electric Drives, Element of power system, Basic Electrical Engineering, Network Analysis & Synthesis, Basic Electrical.

At Postgraduate Level: Power Semiconductor Controlled Electric Drives, Power Converters, Advanced Power Converters, Advanced Microprocessors and Microcontrollers.

Published Books and Proceedings:

1. Investigation In To The Performance Of Multi-Pulse AC-DC Converters : *A Practical Approach to Investigate The Converter Performance against IEEE-519 Standards*, Lambert Academic Publishing, AV Akademikerverlag GmbH & Co. KG, under ISBN 978-3-659-24895-5.
2. Proceeding of Faculty Improvement Programme Approved by H.B.T.I. and TEQIP on "Electric Drive Simulation Using Simulink, A Matlab Tool" Proceeding of Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on "Simulation Techniques of Power Electronics Converters (STPEC)".
3. "Multilevel Inverters for Medium Voltage Induction Motor Drive; An Experimental Investigations with HIL Simulation" Anoop Kumar Kanaujia, Sanjiv Kumar, Published Lambert Academic Publishing, AV Akademikerverlag GmbH & Co. KG, under ISBN-13:978-620-2-56332-1, ISBN-10:620256332X.

Research Publication in Journals:

1. Vinay Kumar and Sanjiv Kumar, "A Four-Level Inverter Fed Open-End Winding Induction Motor Drive for Sugarcane Shredder in Sugar Industry" article has been accepted for publication in IEEE Transactions on Power Electronics (**SCIE**).
2. Vinay Kumar and Sanjiv Kumar, "A Novel Multilevel Inverter fed Open-End Winding Coupled-Induction Motor Drive for Sugar Industry" IEEE Transactions on Energy Conversion, Volume: 38, Issue: 4, December 2023. DOI 10.1109/TEC.2023.3294301 (**SCIE**).
3. Vinay Kumar and Sanjiv Kumar, "Performance Comparison of Electric Drives for Chopping/Shredding Sugarcane in Sugar Industry" AIUB Journal of Science and Engineering (AJSE), Volume 22, Issue 01, pp. 14-23, <https://doi.org/10.53799/ajse.v22i1.282>, May 2023 (**SCOPUS**).
4. Vinay Kumar and Sanjiv Kumar, "An Industrial Survey on Electric Drives and Scope of Multilevel Inverter Based Induction Motor Drives in Sugar Industry," Sugar Tech - An International Journal of Sugarcane Crops & Related Industries", Springer, Volume 23, Issue 03, pp. 709-719, <https://doi.org/10.1007/s12355-020-00940-w>, Electronic ISSN 0974-0740, Print ISSN 0972-1525, 2021 (**SCIE**).
5. Sanjiv Kumar and Pramod Agarwal, "Performance Evaluation of Eighteen-Level Inverter Fed Open-end Winding IM Drive," *IETE Journal of Research, Taylor & Francis*, Volume 67, 2021, Issue 02, pp. 253-262, E-ISSN 0974-780X, <https://doi.org/10.1080/03772063.2018.1532821> (**SCIE**).
6. Sanjiv Kumar and Pramod Agarwal, "A Novel FLC Based Closed-Loop V/f Control of Five-Level Inverter Fed Open-End Winding Induction Motor Drive," *Journal of The Institution of Engineers (India): Series B, Springer*, Volume 100, Issue 03, pp. 193-200.

DOI <https://doi.org/10.1007/s40031-019-00374-3>, Online ISSN 2250-2114, Print ISSN 2250-2106, 2019 (**SCOPUS**)

7. Sanjiv Kumar and Pramod Agarwal, "A Hybrid Nine-Level Inverter Topology for an Open-end Stator Winding Induction Motor," *Electric Power Components and Systems*, Taylor & Francis, Volume 44, Issue 16, pp. 1801-1814, September 2016 (**SCIE**).
8. Sanjiv Kumar and Pramod Agarwal, "A Nine-Level Inverter with Reduced Number of Components for Open-End Winding Induction Motor," *Arabian Journal for Science and Engineering*, Springer, Volume 40, Issue 3, pp. 883-892, March 2015 (**SCIE**).
9. Indra Prakash Mishra and Sanjiv Kumar, "Simulation of Multiple Transmission Line System with Interline Power Flow Controller" *VSRD International Journal VSRD-IJEECE (e-ISSN : 2231-3346 , p-ISSN : 2319-2232)*, Vol. 3 (09), pp. 405-414, September 2013.
10. Indra Prakash Mishra and Sanjiv Kumar, "Control of Active And Reactive Power Flow in Multiple Lines through Interline Power Flow Controller (IPFC)" in *International Journal of Emerging Technology & Advanced Engineering (ISSN 2250-2459)*, Volume 2, Issue 11, pp. 86-93, November 2012.
11. Ashish Gupta and Sanjiv Kumar, "Analysis of Three Phase Space Vector PWM Voltage Source Inverter for ASD's" in *International Journal of Emerging Technology & Advanced Engineering (ISSN 2250-2459)*, Volume 2, Issue 10, pp. 163-168, October 2012.
12. Shweta Srivastava and Sanjiv Kumar, "Comparative Analysis of Improved Quality Three Phase AC/DC Boost Converters, using SIMULINK" in *International Journal of Emerging Technology & Advanced Engineering (ISSN 2250-2459)*, Volume 2, Issue 9, pp. 427-432, September 2012.
13. Ankita Singh and Sanjiv kumar, "Performance Investigation of Active Power Line Conditioner using Simulink " *International Journal of Emerging Technology & Advanced Engineering (ISSN 2250-2459)*, Volume 2, Issue 10, pp. 91-97, October 2012.
14. Ankita Singh and Sanjiv kumar, "Comparative Study of PLL Based Shunt Active Power Line Conditioning Using PI and PID and Fuzzy Logic Controller" *VSRD International Journal VSRD-IJEECE (e-ISSN : 2231-3346 , p-ISSN : 2319-2232)*, Vol. 2 (10), pp. 810-813, October 2012.
15. Praveen Srivastava and Sanjiv Kumar, "Simulation Of Multi-Pulse AC/DC Converter for Medium Voltage ASD's" *VSRD International Journal VSRD-IJEECE (e-ISSN : 2231-3346 , p-ISSN : 2319-2232)*, Vol. 1 (10), pp. 542-554, 2011.
16. Vaibhav Purwar and Sanjiv Kumar, "Simulation of Shunt Active Power Line Conditioner (APLC) for Three Phase AC/DC Converter" *VSRD International Journal VSRD-IJEECE (e-ISSN : 2231-3346 , p-ISSN : 2319-2232)*, Vol. 1 (9), pp. 504-513, 2011.

International/National conferences:

1. Ashutosh Yadav, Sanjiv Kumar, Yash Yuvraj Singh, Suyash Tripathi and Vinayak Mishra, "Performance Investigation of Five-Phase Open-End Winding Induction Motor Drive" in **7th IEEE International Conference** on Computer Applications in Electrical Engineering-

- Recent Advances (CERA-2023), 27–29 October, 2023, Organized by Department of Electrical Engineering, Indian Institute of Technology Roorkee, India.
2. Prakhar Agrahari, Shubhi Tiwari, Yash Yadav and Sanjiv Kumar, " Performance Investigations On Bi-Directional Dc-Dc Converter For Electric Vehicle Charger Using OPAL-RT" in **7th IEEE International Conference** on Computer Applications in Electrical Engineering-Recent Advances (CERA-2023), 27–29 October, 2023, Organized by Department of Electrical Engineering, Indian Institute of Technology Roorkee, India.
 3. Ashutosh Yadav and Sanjiv kumar, "A Novel Six-Level Inverter With Reduce Number of Components For Five-Phase Open-End Winding Induction Motor Drive" in **IEEE International Conference** on Computer, Electronics and Electrical Engineering And Their Applications (IC2E3-2023), 08-09 June, 2023, Organized by National Institute of Technology Uttarakhand, India.
 4. Shubham Singh, Anmol Agnihotri, Shiva Bind and Sanjiv Kumar, "Performance Analysis of A New Carrier Rotation Method for Cascaded H-bridge Multilevel Inverter" in **IEEE First International Conference** on Smart Technologies for Power, Energy and Control (STPEC), 25-26 Sept. 2020, ISBN:978-1-7281-8873-7, DOI: 10.1109/STPEC49749.2020.9297729, Organized by Department of Electrical Engineering, Visvesvaraya National Institute of Technology, Nagpur.
 5. Umesh Kumar and Sanjiv Kumar, "DC-Link Voltage Balancing with Fuzzy Logic Controller for Shunt Active Power Filter of More Electrical Aircraft" in **IEEE First International Conference** on Smart Technologies for Power, Energy and Control (STPEC), 25-26 Sept. 2020, ISBN:978-1-7281-8873-7, DOI: 10.1109/STPEC49749.2020.9297762, Organized by Department of Electrical Engineering, Visvesvaraya National Institute of Technology, Nagpur.
 6. Shubham Singh, Anmol Agnihotri, Shiva Bind and Sanjiv Kumar, " Matlab Simulation Study and Comparison of Different Multiple Carrier PWM Schemes For Multi Level CHB Inverter" in **IEEE First International Conference** on Smart Technologies for Power, Energy and Control (STPEC), 25-26 Sept. 2020, ISBN: 978-1-7281-8872-0, DOI: 10.1109/STPEC49749.2020.9297693, Organized by Department of Electrical Engineering, Visvesvaraya National Institute of Technology, Nagpur.
 7. Vinay Kumar and Sanjiv Kumar, "A Study on Probable Configurations of Cascaded H-Bridge Multilevel Converters for Slip Power Recovery Application in Sugar Industry" in **International Conference** On Electrical And Electronics Engineering (ICE3 2020), 14-15 Feb 2020, Organized by Madan Mohan Malaviya University of Technology, Gorakhpur (U.P) INDIA & North Dakota State University, Fargo, USA.
 8. Umesh Kumar and Sanjiv Kumar, "Performance Evaluation of Shunt Active Power Filter for Aircraft System" in **International Conference** On Electrical And Electronics Engineering (ICE3 2020), 14-15 Feb 2020, Organized by Madan Mohan Malaviya University of Technology, Gorakhpur (U.P) INDIA & North Dakota State University, Fargo, USA.

9. Vinay Kumar and Sanjiv Kumar, "A 3-level Inverter based Induction Motor Drive for Cane Preparation in Sugar Industry" in 2nd IEEE **International Conference** on Power Energy, Environment & Intelligent Control (PEEIC 2019), pp. 1-6, Oct.18-19, 2019 at GL Bajaj Institute of Technology & Management, Greater Noida.
10. Rajat Sachan, Neelesh Kumar, Aditya Arvind, Ajay Kumar Arya and Sanjiv Kumar, "Reduced Switch Count 36 level Inverter for Open End Winding Induction Motor Drive" in 2nd IEEE **International Conference** on Power Energy, Environment & Intelligent Control (PEEIC 2019), pp. 1-6, Oct.18-19, 2019 at GL Bajaj Institute of Technology & Management, Greater Noida.
11. Vinay Kumar and Sanjiv Kumar, "An Efficient Static Rotor-Resistance Control for the Motors of Preparatory Devices of a Sugar Factory" in 33rd Indian Engineering Congress, IEI(India), pp. 265-269, Dec 21-23, 2018, at Udaipur, Rajasthan (India), ISBN No: 978-81938404-9-8.
12. Anoop Kumar Kanaujia and Sanjiv Kumar, "A Reduced Switch Count Hybrid Fifteen-level Inverter for an Open-End Winding Induction Motor (OEWIM) Drive" in 8th IEEE India **International Conference** on Power Electronics (IICPE-2018), pp. 1-6, Dec.13-15, 2018 at Malaviya National Institute of Technology (MNIT), Jaipur.
13. Anoop Kumar Kanaujia and Sanjiv Kumar, "A Hybrid Twenty Five-level Inverter for an Open-End Winding Induction Motor (OEWIM) Drive" in 2nd IEEE **International Conference** on Power Electronics, Intelligent Control and Energy Systems (ICPEICES-2018), pp. 1072-1077, Oct. 22-24, 2018 at Delhi Technological University (DTU), Delhi.
14. Anoop Kumar Kanaujia, Sanjiv Kumar and D.Swain, "Multi-level Inverter based Topologies for Sugar Mill Drive Applications", in 76th STAI Annual Convention and **International Sugar Expo 2018**, pp. 1-12, Aug.20-22, 2018 at Brilliant Convention Centre, Indore.
15. Sanjiv Kumar and Pramod Agarwal, "Performance Evaluation of Multi-Level Inverter Fed Open-end Winding IM Drive Under Two Different Modulation Schemes," in 6th IEEE **International Conference** on Computer Application in Electrical Engineering- Recent Advances(CERA-17), 2017, pp. 303-308, October 05-07, 2017 at Indian Institute of Technology Roorkee, India.
16. Sanjiv Kumar and Pramod Agarwal, "Simulation of FLC Based Five-Level Inverter Fed Open-end Winding IM Drive," in IEEE **International Conference** on Recent Advances in Engineering and Computational Sciences (RAECS), 2015, pp. 1-6, December 21 - 22, 2015 at UIET Panjab University Chandigarh, India. (978-1-4673-82)
17. Sanjiv Kumar and Pramod Agarwal, "A Novel Eighteen-Level Inverter for an Open-end Winding Induction Motor," in 6th IEEE **International Conference** on Power Electronics (IICPE), 2014, pp.1-6, Dec. 08-10, 2014 at National Institute of Technology Kurukshetra, India.
18. Sanjiv Kumar and Pramod Agarwal, "A Nine-Level Inverter For Open-end Induction Motor" in IEEE **International Conference** on Recent Advances in Engineering and Computational Sciences (RAECS), 2014, pp. 1-6, March 06 - 08, 2014 at UIET Panjab University Chandigarh, India.

19. Ravindra Kumar and Sanjiv Kumar, "A Novel Technique for Impedance Relay to Locate Fault in Long Transmission Line" in IEEE **International Conference** on Recent Advances in Engineering and Computational Sciences (RAECS), 2014, pp. 1-6, March 06 - 08, 2014 at UIET Panjab University Chandigarh, India.
20. Sanjiv Kumar, Kumar D., Saini V. and Kumar J., "Industrial Automation System" XXXII National Systems Conference (NSC-08), 17-19 Dec. 2008 at Indian Institute of Technology, Roorkee.
21. Sanjiv Kumar, Y.P. Singh, "Simulation and Experimental Validation of Multipulse AC/DC Converter" National Conference on Emerging Trends in Electrical, Electronics & Computer Technologies, 05-06 Sep. 2008 at Ajay Kumar Garg Engg. College, Ghaziabad.

Review Service:

Power Electronics Basic Electrical and Electronics book McGraw-Hill Education (India) Pvt. Ltd; International Conferences ICACCA-2016, RACES-2015; CERA-2017, IEEE Transactions on Power Electronics, IEEE Transactions on Industrial Informatics, Journals IETE Journal of Research, *Taylor & Francis, Springer, etc..*

Outreach:

- Counsellor IEEE Student Branch HBTU (HBTI) Kanpur (STB11519)
- Faculty Advisor IEEE Power Electronics Society Student Branch Chapter HBTU (HBTI) Kanpur (SBC11519)
- YouTube Channel: <https://www.youtube.com/@powerelectronicsbydrsanjivsir>
- Convener Association of Electrical Engineering, HBTU Kanpur.

Departmental and Institutional Service:

1. Coordinator, HRD Cell (16/10/2023 – till date)
2. Associate Dean, School of Engineering (27/08/2022-till date)
3. Associate Dean, Academic Affairs (17/07/2017-07/05/2018)
4. Officer In-Charge SPS (e-Tendering) (17/07/2017-28/10/2020)
5. University Faculty In-Charge Placement (11/01/2017-15/04/2019)
6. Dean of School Nominee in DPC of University Dean Academic Affairs Office (11/04/2017)
7. Member Ph.D Student Research Committee of Electrical Engineering Department.
8. Member Secretary in DPC of University Security (11/04/2017)
9. Member Secretary in DPC of University Guest House (11/04/2017-12/11/2021)
10. Member Secretary in DPC of CS&P (11/04/2017-20/07/2021)
11. Subject Expert in Ph.D. interview committee (14/09/2017)
12. Hostel Warden LV-New (03/07/2017-06/09/2017)
13. Member of preparation committee of First Ordinance of the HBTU (29/08/2017)
14. Member, Preparation and Printing of Information Brochure Committee (06/03/2017)
15. Associate Dean, Continuing Education & Internal Quality Assurance (03/06/2017-16/07/2017)
16. Department Faculty In-Charge Placement Cell (11/01/2017-22/05/2019)
17. Member, Virtual Class Room Construction Committee (06/03/2017)
18. Convener Electrical Engineering Department No-dues Committee (06/11/2015)
19. Deputy Nodal Officer, GEC Kannauj (16/07/2015-22/04/2016)
20. Faculty In-Charge MIS TEQIP-II (07/08/2015-till the end of project)

21. Convener Cultural Sub-Council (01/08/2016-17/02/2018)
22. Faculty In-Chargr B.Tech. Project, EED
23. Admin ERP & RMS of EED
24. In-charge Department Library
25. Member of EED M.Tech. Admission Committee
26. Member of BOS of EED
27. Member of Selection Committee of Guest Faculty for HBTI and Bijnor Engg. College (03/08/2011)
28. Member of Anti Ragging Committee
29. Member of SEE Counseling Committee
30. In-charge Simulation Lab
31. In-charge Real Time (Opal-RT) Digital Simulation Lab
32. Representative of EED in Institute Time-Table Committee
33. Faculty In-charge Industrial Training, EED
34. Assistant Superintendent Exam-Cell

List of Ph.D. Supervised/Ongoing:

1. Multilevel Inverter Fed Induction Motor Drive for Sugar Industry (Vinay Kumar; 170305001) permitted for submission.
2. Performance Investigations of Low Voltage High Current Power Supply (Jitendra Kumar Dwivedi; 180305001) on going.
3. Performance Enhancement of Multilevel Inverter For High Voltage Photovoltaic Power Generation (Rajat Sachan; 180305002) on going.
4. Research Area Power Electronics (Ashutosh Yadav; 210305001) on going.

List of M.Tech. Dissertations Supervised:

1. Simulation of Multipulse AC-DC Converter For Medium Voltage ASD's (Praveen Srivastava; 5504520001)
2. Simulation of Shunt Active Power Line Conditioner (ALPC) For Three Phase AC/DC Converter (Vaibhav Purwar; 5504520003)
3. Simulation of Three-Phase Space Vector Pulse Width Modulation Based VSI for ASD's (Ashish Gupta; 8804520002)
4. Comparative Analysis of Improved Quality Three Phase AC/DC Boost Converters, Using Simulink (Shweta Srivastava; 8804520007)
5. Simulation of Interline Power Flow Controller (Indra Prakash Mishra; 8904520002)
6. Performance Investigation of Active Power Line Conditioner Using Simulink (Ankita Singh; 8904520004)
7. Simulation of Fuzzy Logic Based Shunt Active Power Filter For Power Quality Improvement (Santosh Kumar Yadav; 6201520006)
8. Multi-level Hybrid Inverters for an Open-End Winding Induction Motor (OEWIM) Drive (Anoop Kumar Kanaujia: Roll No.- 6504520002) (2018)

9. Performance Investigation of Active Power Filter for Aircraft Rectifier (Umesh Kumar: Roll No.-170211003) September, 2020.

List of B.Tech. Projects Guided:

1. Design of An Automatic Star Delta Starter by Using DC Tachogenerator (Nutan Kumar Sharma, 2006-07)
2. Temperature Control Based On Microcontroller, (Khushboo Yadav, Geetanjali Bajpai, Renu, 2007-08)
3. Prototype Metro Train (Brijesh Goswami, Pradeep Kumar, Ravi Prakash, Sachin Kumar, 2007-08)
4. Speed Control Of Single Phase Induction Motor Using Microcontroller-16F72, (Mayank Guglani 476/04, Sumit Sharma 158/04, Suresh Maurya 164/04, Vivek Kumar Singh 163/04, 2007-08)
5. Simulation Of Power Flow Controller (UPFC), (Mayank Srivastava 152/05, Rakesh Nayak 143/05, Pankaj Tripathi 151/05, 2008-09)
6. Comparative Study Of Various AC/DC Converter Using MATLAB, (Devendra Kumar 170/05, Vikash Saini 141/05, Jitendra Singh 439/05, 2008-09)
7. Modeling And Simulation Of Matrix Converter, (Mohit Purwar 155/05, Ashutosh Gupta 72/05, Sandeep Kumar 161/05, 2008-09)
8. Simulation Of Improved Quality 12 Pulse Converter For Medium Voltage ASD's, (Nav Goel 140/07, Ashish Gupta 142/07, Vikas Singh 167/07, 2010-11)
9. Simulation Of Interline Power Flow Controller (IPFC), (Asha Sharma 517/08, Madhu Sharma 344/07, Priya Chaurasiya 519/08, 2010-11)
10. Simulation Of Three Phase Controlled Rectifier Fed DC Drives, (Ashutosh Kumar Srivastava 144/07, Ishita Dubey 338/07, 2010-11)
11. Simulation And Experimental Validation Of Generalised AC-DC Converter, (Alok Shukla 361/07, Manvendra Singh 150/07, Tilak Singh 165/07, 2010-11)
12. Implementation Of TCSC On Transmission Line Using MATLAB, (Chandrashekhar Yadav 1015/08, Rohit Kumar Singh 160/08, Shishir Bijalwan 559/08, 2011-12)
13. Comparative Analysis of 1- ϕ AC-DC Buck/Boost Improved Power Quality Converter Using Simulink, (Saurabh Patel 443/08, Surjeet Singh 519/09, Vinod Kumar Gupta 169/08, 2011-12)
14. Comparative Analysis of V/f Control Method And Stator Voltage Control Method of Speed Control of Three-Phase Induction Motor(Kartik Mathur 670/12, Nishant Singh 160/12, Shubhanshu Singh 169/12, 2015-16)

15. Performance Investigation of Active Power Filter For Grid Connected Photovoltaic System (Mukesh Kumar 157/12, Pranshul Kumar Srivastava 260/12, Shamsheer Alam Khan 168/12, 2015-16)
16. Open Switch Fault Detection in Grid Connected NPC Multilevel Inverter System (Aman Gupta 143/12, Himanshu Bhatt 152/12, Mukesh Goel 1009/12, 2015-16)
17. Performance Investigation of LCL Power Filter For Grid Connected Photovoltaic System (Arjun Kumar Chaurasia 143/13, Ashutosh Kumar Mishra 147/13, Prakhar Gupta 158/13, 2016-17)
18. Multilevel Inverter For Induction Motor Drive (Anshika Chandra 142/13, Manish Kumar Yadav 151/13, Nitin Dagaur 155/13, 2016-17)
19. Implementation of Control Circuit For AC-DC Converter , (Arpita 251/13, Vijay Pratap Singh 418/13, Vivek Gupta 477/13, 2016-17)
20. Simulation Study on Maximum Power Point Tracking Technique For PV Application (Ashwani Rana 150/14, Shweta Singh 169/14, Meghna Awasthi 460/14, 2017-18)
21. Investigation on Energy Management Strategies For Hybrid Electric Vehicle Using ADVISIOR, (Ayushi Chaudhary 151/14, Kripa Shankar 159/14, Sheetal mandal 167/14, 2017-18)
22. Simulation Study on Open End Winding I.M. Drive, (Neelesh Kumar 149/14, Aditya Arvind 143/15, Ajay Kr. Arya 144/15, 2018-19)
23. Simulation Study on Chopper Fed DC Motor Drive, (Pratik Pandey 157/15, Sudhansu Upadhyay 536/16, Sourav Gupta 539/16, 2018-19)
24. Performance Investigation of Multilevel Inverter For Medium Voltage VFDs, (Akarsh Sharma 164/16, Ankit Singh Chaudhary 159/16, Neha Yadav 166/16, 2019-20)
25. Modulation Techniques for Multilevel Inverters, (Anmol Agnihotri 157/16, Shiva Bind 154/16, Shubham Singh 161/16)
26. Simulation Study of Reduced Switch Count Multi-Level Inverter (Anchi Rai 170105005, Richa 170105024, Siddhi 170105033, 2020-21)
27. Simulation Study of Multiphase Induction Motor Drive (Nishant Trivedi 170105017, Pawan Singh 170105018, Ritesh Gupta 170105025, 2020-21)

28. Performance Investigation on Bi-Directional DC-DC Converter For Electric Vehicle Charger Using Opal-RT (Ashish Singh 190105012, Prakhar Agrahari 190105023, Shubhi 190105035, Yash Yadav 190111037)
29. Performance Investigation of Five-Phase Open-End Winding Induction Motor using OPAL-RT (Suyash Tripathi 190105040, Vinayak Mishra 190105041, Yash Yuvraj Singh 190105044)

MOOCs/FDP/Short-term Courses/ Workshop/ Seminar/Webinar Attended:

1. Signal Processing And Filter Design, Department of Electronics Engg. H.B.T.I. Kanpur,TEQIP, 09/05/2007-11/05/2007.
2. Applications of Mathematics in Engineering and Technology”, Department of Mathematics, H.B.T.I. Kanpur,TEQIP, 08/09/2007.
3. Simulation Techniques of Power Electronics Controllers, Indian Institute of Technology, Roorkee, Q.I.P., 07/01/2008-11/01/2008 (**One Week**).
4. Design And Implementation Of VLSI Digital Signal Processing System, Department of Electronics Engg. H.B.T.I. Kanpur, AICTE Sponsored , From December 22, 2008 to Jan. 02, 2009 (**02 Weeks**).
5. Improved Quality AC/DC Converters, I.I.T.Roorkee, Q.I.P., 15/06/2009-19/06/2009 (**One Week**).
6. Workshop on “Virtual Labs” Electrical Engineering Department, Indian Institute of Technology, Roorkee, 16/03/2013.
7. High Voltage Direct Current Transmission: Past And Present, Indian Institute of Technology, Roorkee, Q.I.P., 08/07/2013-12/07/2013 (**One Week**).
8. Multilevel Inverters and Its Applications, Indian Institute of Technology, Roorkee, Q.I.P., 30 Dec, 2013 – 03 Jan, 2014 (**One Week**).
9. Workshop on “Novel Correlated Electronic Materials” Department of Physics, Indian Institute of Technology, Roorkee, Q.I.P., 08 March, 2014.
10. Power Electronics Applications in Large Pumped Storage Hydropower Plants, Indian Institute of Technology, Roorkee, Q.I.P., 14 July, 2014 – 18 July, 2014 (**One Week**).
11. Workshop on “Scopus And Mendeley” Mahatma Gandhi Central Libirary, Indian Institute of Technology, Roorkee, 10/03/2015.
12. Workshop on “Checking of Plagiarism in scientific writing using Turnitin Software” Mahatma Gandhi Central Libirary, Indian Institute of Technology, Roorkee, 17/04/2015.
13. Workshop on “Virtual Labs” Electrical Engineering Department, Indian Institute of Technology, Roorkee, 24-25/04/2015.
14. 12th Management Capacity Enhancement Program on Academic Leadership Program For TEQIP Institutions, IIM Kozhikode, 24th to 29th August, 2015 (**One Week**)

15. Management Capacity Enhancement Program on Administrative Heads of Higher Education Institutions, IIM Bangalore, from 18th to 22th January, 2016 (**One Week**)
16. Workshop on "Intellectual Property Rights (IPR) and Patenting" conducted by HBTU Kanpur in collaboration with ESCI, The Institution of Engineers (India), 27-29 August, 2016.
17. Workshop on "Modeling, Simulation and Implementation using MATLAB and Simulink" conducted by Indian Institute of Technology, Kanpur, 01-02 February, 2017.
18. Workshop on "Energy Conservation and Energy Audit in Academic Institutions" conducted by Chemical Engineering Department, HBTU Kanpur in collaboration with ESCI, The Institution of Engineers (India), 07-09 March, 2017.
19. Workshop on "Outcome Based Accreditation For Undergraduate Engineering Programs" jointly organized by Harcourt Butler Technical University Kanpur and Uttar Pradesh Textile Technology Institute Kanpur, 22-23 March, 2018.
20. Summer training Program on "Active Learning For Senior Faculty" organized by IIT Kanpur, June 11-15, 2018 (**One Week**).
21. Faculty Development Programme on "Mathematical Modeling & Research Methodology" organized by Department of Mathematics, School of Basic and Applied Sciences, Harcourt Butler Technical University Kanpur, 08-12 October, 2018 (**One Week**).
22. Faculty Development Programme on "Methods And Techniques For Enhanced Teaching And Learning In Technical Education" organized by Chemical Engineering Department, School of Engineering, Harcourt Butler Technical University Kanpur, 15-20 October, 2018 (**One Week**).
23. Two weeks TEQIP-III sponsored Short Term Course (STC) on Control and Machine Intelligence, organized by Department of Electrical Engineering, SoE, HBTU, Kanpur and Department of Electrical and Electronics Engineering(EEED), Thiagarajar College of Engineering (TCE), Maqdurai, Tamilnadu, From September 16, 2019 to September 28, 2019 (**Two Weeks**).
24. One week Short Term Course (STC) Artificial Intelligence and Fuzzy Systems: Theories, Concepts and its Application, organized by Indian Institute of Technology, Kanpur, Q.I.P., 09/12/2019-13/12/2019 (**One Week**).
25. Webinar on "Recent Trends and advancements in Electric Vehicle", organized by Department of Electrical Engg. REC Banda, 21 May, 2020.
26. Webinar on "Use of ICT in Good Governance", organized by Department of Electrical Engineering & Institution's Innovation Council, REC Banda, 07 June, 2020
27. Webinar on "Outcome Based Education Software", organized by Vmedulife Software Services, 28 May, 2020.

28. Workshop on "Interactive Teaching and Experiential Learning using MATLAB and Simulink", by MathWorks Expert, organized by State Project Implementation Unit, TEQIP-III, 13 May, 2020.
29. Webinar on "Effective Decision Making Tools During and Beyond COVID-19", organized by State Project Implementation Unit - Uttar Pradesh and Bundelkhand Institute of Engineering and Technology, Jhansi, 12 June, 2020.
30. Webinar Attended "Virtual lab Through Video Conferencing on Zoom", organized by Institute of Engineering and Technology, Dr. Rammanohar Lohia Awadh University, Ayodhya, 16 April, 2020.
31. National Webinar on "Unlocking The Lockdown Through E-Examination", organized by Institute of Engineering and Technology, Dr. Rammanohar Lohia Awadh University, Ayodhya, 20 April, 2020.
32. Webinar on "Effective Research Paper Writing", organized by REC, Bijnor, 23 May, 2020.
33. National Webinar on "Converter Harmonics-Causes and Elimination", organized by Rewa Engineering College, Rewa, 27 July, 2020.
34. MOOCS Course on "Advance Power Electronics and Control", organized by IIT, Roorkee, Jan-Mar, 2020 **(08 weeks)** on the SWAYAM platform.
35. One week Faculty Development Program (FDP) on "Real Time hardware in the Loop (HIL) Simulation for Power Electronics & Power Systems", organized by Department of Electrical Engineering, REC, Mainpuri, 22th to 26th June 2020 **(One Week)**.
36. Two weeks Faculty Development Program (FDP) on "Managing Online Classes And Co-Creating Moocs :2.0", organized by Teaching Learning Center, Ramanujan College, University of Delhi, May 18 - Jun 03, 2020 **(02 Weeks)**.
37. Online Training on "Android App Development", organized by Internshala, May 18- Jul 13, 2020 **(08 Weeks)**.
38. One week Faculty Development Program (FDP) on "Embracing the Creative Side of Teaching and Learning Methods", organized by RMK College of engineering and Technology, Jun 29- Jul 03, 2020 **(One Week)**.
39. One week Faculty Development Program (FDP) on "Unpacking E-Mobility Technologies For India", organized by Electrical Engineering Department, M. N. National Institute of Technology Allahabad, Prayagraj, 20-24 Nov, 2021 **(One Week)**.
40. One week Training Program on "Intelligent Power transmission & Distribution Systems", organized by Indian Institute of Technology, Kanpur, 18-22 May, 2022 **(One Week)**.
41. One week Training Program on "Role of Power Electronics And Advances in Infrastructure For E-mobilityin India", organized by E & ICT Academy, NIT Warangal and Malaviva National Institute of Technology, Jaipur, 11-19 July, 2022 **(09 Days, 40-Hours)**.

42. One week Online Short Term Course on "Research Methodology and Quantitative Techniques", organized by Department of Mathematics, Harcourt Butler Technical University, Kanpur, 13-19 October, 2022 **(One Week)**.
43. One week Online Faculty Development Program on "Recent Advancements In Power Systems", organized by Godavari Institute Of Engineering And Technology, Andhra Pradesh, 28 Nov.- 03 Dec. 2022 **(One Week)**.
44. One week Short Term Training Program on " Emerging Trends in Electric Vehicles and Renewables (ETER-2022)", organized by Department of Electrical Engineering, Sardar Vallabhbhai National Institute of Technology, Surat, 12-16 December, 2022 **(One Week)**.
45. One week (5-Day) National Level online Faculty Development Program on “Advanced Power Electronic Converters for RES and EV Applications” organized by the Dept. of EEE, Rajeev Gandhi Memorial College of Engineering & Technology (Autonomous), Nandyal, A.P., 09 - 13 January 2023 **(One Week)**.
46. Workshop on “Intellectual Property Rights”, sponsored by Council of Science & Technology, U.P., organized by Harcourt Butler Technical University, Kanpur, 29th Jan., 2024.
47. Two weeks DST sponsored Faculty Development Program (FDP) on “Entrepreneurship Development”, organized by Amity Innovation & Design Centre, Amity University Uttar Pradesh, Feb. 19 – March 05, 2024 **(02 Weeks)**.

Invited Talk/ Expert Lecture:

1. Delivered an expert lecture titled "AC/DC Rectifiers An-Overview" in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on “Simulation Techniques of Power Electronics Converters (STPEC)”, HBTU, Kanpur, 27/02/2017.
2. Delivered an expert lecture titled "Simulation of AC-DC Rectifier Systems " in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on “Simulation Techniques of Power Electronics Converters (STPEC)”, HBTU, Kanpur, 27/02/2017.
3. Delivered an expert lecture titled "Modeling and Simulation of DC-DC Converter Systems " in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on “Simulation Techniques of Power Electronics Converters (STPEC)”, HBTU, Kanpur, 28/02/2017.
4. Delivered an expert lecture titled " Simulation of AC Regulator Using MATLAB Simulink" in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on “Simulation Techniques of Power Electronics Converters (STPEC)”, HBTU, Kanpur, 28/02/2017.
5. Delivered an expert lecture titled "Simulation and Modeling of VSI" in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on

"Simulation Techniques of Power Electronics Converters (STPEC)", HBTU, Kanpur, 02/03/2017.

6. Delivered an expert lecture titled "Simulation of Multi- Pulse AC/DC Converter" in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on "Simulation Techniques of Power Electronics Converters (STPEC)", HBTU, Kanpur, 02/03/2017.
7. Delivered an expert lecture titled "Multilevel Inverters and its Applications" in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on "Simulation Techniques of Power Electronics Converters (STPEC)", HBTU, Kanpur, 03/03/2017.
8. Delivered an expert lecture titled "Multilevel Inverters Modulations Techniques" in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on "Simulation Techniques of Power Electronics Converters (STPEC)", HBTU, Kanpur, 03/03/2017.
9. Delivered an expert lecture titled "Reduced Number of Devices Multilevel Inverters" in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on "Simulation Techniques of Power Electronics Converters (STPEC)", HBTU, Kanpur, 04/03/2017.
10. Delivered an expert lecture titled "Modeling and Simulation of OWIM Drive" in Faculty Improvement Programme under the aegis of World Bank TEQIP-II Project on "Simulation Techniques of Power Electronics Converters (STPEC)", HBTU, Kanpur, 04/03/2017.
11. Invited and delivered an expert talk on "Industrial Automation" in "IETE Students Day" organized by The Institutions of Electronics and Telecommunications Engineers, 07/02/2016.
12. Invited and delivered an expert talk in Faculty Improvement Programme organized by Department of Electrical & Electronics Engineering, Shri Ram Murti Smarak College of Engineering and Technology, Bareilly on Recent Trends in Power Electronics and Power Systems, 14/07/2017.
13. Invited and delivered an expert talk in Faculty Improvement Programme organized by Department of Electrical & Electronics Engineering, Allenhouse Institute of Technology, Kanpur on "MATLAB & Its Applications", 08/06/2018.
14. Delivered an expert talk at Department of Electrical & Electronics, Pranveer Singh Institute Of Technology, Kanpur on "Open End Winding Based Multilevel Inverter For Induction Motor Drive", 29/02/2020.
15. Delivered an expert talk at NIT Patna in Online mode on "Review Of AC-DC, DC-DC Converters" in Faculty Development Program "Recent Advancement In Power electronics Applications With MATLAB Simulations" 25-30, May 2020.

16. Delivered an expert talk at NIT Patna in Online mode on "Review Of AC-AC And DC-AC Converters" in Faculty Development Program "Recent Advancement In Power electronics Applications With MATLAB Simulations" 25-30, May 2020.
17. Delivered an expert talk at NIT Patna in Online mode on "Reduced Switch Count Open-end Winding Based Multilevel Inverters" in Faculty Development Program "Recent Advancement In Power electronics Applications With MATLAB Simulations" 25-30, May 2020.
18. Delivered an expert talk at NIT Patna in Online mode on "MATLAB Hands On AC-DC, DC-DC Converters" in Faculty Development Program "Recent Advancement In Power electronics Applications With MATLAB Simulations" 25-30, May 2020.
19. Delivered an expert talk at NIT Patna in Online mode on "MATLAB Hands On AC-AC And DC-AC Converters" in Faculty Development Program "Recent Advancement In Power electronics Applications With MATLAB Simulations" 25-30, May 2020.
20. Delivered an expert talk at NIT Patna in Online mode on "MATLAB Hands On Reduced Switch Count Open-end Winding Based Multilevel Inverters " in Faculty Development Program "Recent Advancement In Power electronics Applications With MATLAB Simulations" 25-30, May 2020.
21. Delivered an expert talk in 12th International Conference on Real-Time Simulation in online mode on "Realization of Hybrid Nine-Level Inverter Using RT-LAB in HIL", 18/06/2020.
22. Delivered an expert lecture titled, "Learning by performing Through Virtual Labs" at Institute of Engineering and Technology, Dr. Rammanohar Lohia Awadh University, Ayodhya, 05 July, 2020.
23. Delivered an expert talk titled, "Video Creation and editing for MOOCS" in Faculty Development Programme on "E content creation for MOOCS and MOODLES" at IET, Dr. Rammanohar Lohia Awadh University, Ayodhya, 10-14 July, 2020.
24. Delivered an expert lecture titled "Future trends of Jobs: Post COVID-19" at Department of Training and placement, in Sant Longowal Institute of Engineering and Technology, Punjab, 20-21 July, 2020.
25. Delivered an expert lecture titled, "Multi Level Inverter (MLI) Based Drive System for Electric Vehicle" In Electrical & Electronics Engineering Department at SRMS College of Engineering and Technology, Bareilly, 10 Oct., 2020.
26. Delivered an expert lecture titled, "Power Electronics Control of AC Drives" in TEQIP-III at REC, Banda, 30-31 Dec., 2020.
27. Delivered an expert lecture titled, "Simulation Techniques for Power Electronics Convertors (STPEC-2020)" in Faculty Development Program on Electrical and Computer Engineering at NIT, Patna, 08-12 Feb., 2021.
28. Delivered an expert lecture titled, "Video Creation and Editing for Online Education" in One Day National Webinar on 'Online Education In Technical Institutions: A New

Normal' organized by Department of Paint Technology, School of Chemical Technology, Harcourt Butler Technical University, Kanpur on 27th of August, 2021.

29. Delivered an expert lecture titled, "Multilevel Inverters" in Webinar, organized by Department of Electrical Engineering, SRMCEM, Lucknow on 23rd of May, 2022.
30. Delivered an expert lecture titled, "MATLAB simulation of AC-DC converters" in Webinar, organized by IEEE Student Branch and Department of Electrical Engineering, REC Banda on 26th May, 2022.
31. Delivered an expert lecture titled, "Electrical Circuit Analysis using MATLAB" in Webinar, organized by IEEE Student Branch and Department of Electrical Engineering, REC Banda on 14th June, 2022.
32. Delivered an expert lecture titled, "Hands on Learning on MATLAB : Electric Vehicle Charging and Battery Management System" organized by AMITY School of Engineering in association with IEEE Student Branch AUUP Lucknow Campus, on 10th December, 2022.
33. Delivered an expert lecture titled, "Open-end Winding Induction Motor Drive For Electric Vehicles" in Short Term Course on "Power & Control Strategy for Net-Zero Emissions (PCSN- 2023)" organized by Department of Electrical Engineering, Sardar Vallabhbai National Institute of Technology, Surat from 20th February 2023 to 24th February 2023.
34. Delivered an expert lecture titled, "Recent Trends And Applications of Power Electronics in Industry" in Power Electronics Day Celebration jointly organized by IEEE Power Electronics Society Student Branch Chapter HBTI Kanpur (SBC11519) and Department of Electrical Engineering, HBTU Kanpur on 20th June, 2023.
35. Delivered an expert lecture titled, "Multilevel Inverters - Igniting Research Paths In Power Electronics" in webinar organized by Rhyni - Tech Skills & Fundamental on 21st Jan., 2024.

Short-term Courses/Workshop/Professional Activities Organized:

1. A Faculty Development Programme Approved by H.B.T.I. Kanpur and TEQIP on "Electric Drive Simulation Using Simulink, A Matlab Tool" from January 12, 2009 to January 17, 2009, (**Course Coordinator**).
2. Two days workshop on "Robotics" held in EED H.B.T.I. Kanpur from 03rd March to 04th March 2011, (**Convener**).
3. Annual technical fest "Resonance-11" held in EED H.B.T.I. Kanpur from 10th March to 11th March 2011, (**Convener**).
4. A Faculty Development Programme under the aegis of World Bank TEQIP-II Project on "Simulation Techniques of Power Electronics Converters (STPEC)" from February 27th-March 04th, 2017, (**Course Coordinator**).

5. Three days workshop on "Effective Pedagogy for Engineering Faculties" conducted by Electrical Engineering Department, HBTU Kanpur in collaboration with ESCI, The Institution of Engineers (India) from 26th – 28th March, 2017, (**Workshop Coordinator**).
6. Three days workshop on "Management Capacity Enhancement Programme – Incompliance with NBA and NAAC Accreditation" conducted by Electrical Engineering Department, HBTU Kanpur in collaboration with ESCI, The Institution of Engineers (India) from 29th – 31st March, 2017, (**Workshop Coordinator**).
7. A one week "Induction Programme For First Year B-Tech. Students" under TEQIP III, during January 15-21, 2018, (**Faculty Mentor**).
8. AICTE Training and Learning (ATAL) Academy approved five days Faculty Development Program on "Electrical and Computer Engineering", organized by Department of Electrical Engineering, National Institute of Technology Patna from 08-12 February 2021, (**Course Convener**).
9. Alumni Interaction with Mr. Nav Goel, Dy. General Manager, Finance, Dedicated Freight Corridor Corporation of India Ltd, 24th September, 2022, (**Convener, AEE**).
10. Industrial Expert talk on "Bifacial Solar Power Plant" in Online mode, 30th September, 2022, (**Convener, AEE**).
11. 1st Executive Committee Meeting, 20th May, 2023, (**Counsellor, IEEE STB**).
12. Inauguration of IEEE PELS SBC HBTU and Orientation of New member IEEE, 26th May, 2023, (**Faculty Advisor, IEEE PELS SBC**).
13. Logo Design Competition, 18th June, 2023, (**Faculty Advisor, IEEE PELS SBC**).
14. Power Electronics Day Celebration, 20th June, 2023, (**Faculty Advisor, IEEE PELS SBC**).
15. International Yoga Day, 21th June, 2023, 21th June, 2023, (**Faculty Advisor, IEEE PELS SBC**).
16. 2nd Executive Committee Meeting IEEE PELS SBC HBTU, 22nd July, 2023, (**Faculty Advisor, IEEE PELS SBC**).
17. Chandrayan-3 Soft Landing Celebration: A Spectacular Lunar Watch Party, 18th September, 2023, (**Faculty Advisor, IEEE PELS SBC**).
18. International Webinar on Machine Learning: Next Generation Intelligent E-Mobility. 23rd September, 2023, (**Faculty Advisor, IEEE PELS SBC**).

Skills:

Software Skills: MATLAB, OrCAD, Ms-Office, MS-Visio, SMARTDRAW, Multi-Sim, E-Tap, PSCAD.

Language Skills: English (Fluent), Hindi (Native)

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