Bhukya Krishna Naick
Assistant Professor
Department of Electrical Engineering
Indian Institute of Technology (ISM)
Dhanbad, Jharkhand, India - 826004.
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1. Date of Joining IIT (ISM): 15.12.2010

2. Fields of Interest:

Application of Renewable Energy Sources in Power Systems, Electrical Drives

3. Academic Qualification:

Ph.D. (Engineering) – Indian institute of Technology (ISM), Dhanbad, Jharkhand, India, 2018.

M.Tech. (Energy Systems) – Jawaharlal Nehru Technological University College of Engineering, Anantapur, Andhra Pradesh, India, 2006.

B.Tech. (Electrical and Electronics Engineering) – Sri Venkateswara Engineering College, Suryapet, Nalgonda, Telangana, India, 2003.

4. Present Address:

- Quarter No. 126, Block – 09, Type – IV 150 Quarters, IIT (ISM) Campus, IIT (ISM) Dhanbad, Jharkhand, India – 826004.

5. Experience:

- Assistant Professor in the Department of Electrical Engineering at Indian Institute of Technology (Indian School of Mines), Dhanbad since 15th December 2010.
- 3 years teaching experience as an Assistant Professor in the Department of Electrical & Electronics Engineering at Netaji Institute of Engineering & Technology, Toopranpet, Nalgonda Dist, Telangana.

6. Courses Taught:

A. UG Courses

- Network Theory
- Electrical Circuits
- Basic Electrical Engineering
- Electromagnetic Fields / Field Theory
- Power Systems – II
- Non-Conventional Sources of Energy
- Electrical Technology
- Electrical Energy Systems
- Circuit Theory

- Utilization of Electrical Power

B. PG Courses

- Generalized Theory of Electrical Machines
- Green Energy Technology

7. Membership of Professional and Scientific Bodies:

- IEEE
- Institution of Engineers (India).

8. Student Research:

A. Details of Students awarded PhD under my supervision:

S. No.	Name of Student	Date of Registration & Full-time/Part-time	Title of Thesis	Year of Award
1.	Rani Kumari (19DR0123)	01.08.2019 & Full-time	Protection Coordination and Reliability Enhancement of Microgrids	September, 2024

B. Details of ongoing PhD Students:

S. No.	Name of Student	Date of Registration	Title of Thesis	Remarks
1.	Moparthi Janardhan Rao (18DR0085)	30.07.2018	Development of an Optimal Protection Scheme for Micro Grid Interconnected with Different DG units	Part-Time
2.	Prasad Bhukya (19DP0007)	01.08.2019	Design and Development of Safe and Energy Efficient Mine Electrical System	Part-time
3.	Rajendra Kumar Sharma (20DR0110)	21.08.2020	Protection Coordination in Distribution Systems with Distributed Generation	Full-Time
4.	Neha Kumari (22DR0139)	03.08.2022	Implementation of Different Control Algorithms for Renewable Energy and Smart Grids	Part-time
5.	Shubham Kumar Vishwakarma (23DR0166)	18.07.2023	Advanced Speed Control Techniques of Permanent Magnet Synchronous Machine Drives for Electric Vehicles	Full-time

C. Details of M. Tech Thesis Guided:

S. No.	Name of Student	Title of the Thesis	Specialization	Year of Award

1.	Anant Sharma (22MT0025)	Intelligent Protection of DC Microgrid	EE	2024
2.	Saket Kumar (21MT0350)	Microgrid Protection using Empirical Mode Decomposition and MRMR Feature Ranking Approach	EE	2023
3.	Shashi Bhanu (20MT0370)	DQ Control of Double Stage Single Phase Grid Connected Solar Photovoltaic Inverter	PE&ED	2022
4.	Pujari Giridhar (20MT0288)	Bidirectional Power Flow Control in a DC Microgrid Through a Switched - Capacitor Cell Hybrid DC-DC Converter with Solar PV Array	PE&ED	2022
5.	Neelam Kumari (20MT0241)	Optimal Emplacement and Allocation of Distributed Generators by using Ant Lion Optimization Algorithm	PSE	2022
6.	Bhavani Kandipalli (19MT0111)	Islanding Detection Method for Distributed Generators based on Droop Characteristics	PE&ED	2021
7.	Prasenjit Sahana (17MT001921)	Maximum Power Point Tracking of a Photovoltaic System using Particle Swarm Optimization under Partially Shaded Condition	PSE	2019
8.	Sumit Kumar (17MT001645)	A Low Cost Three Phase Induction Motor Drive Operated on Single Phase Input Source	PE&ED	2019
9.	Ajmeera Ashok Kumar (17MT002023)	Optimization of Hybrid Energy Systems using PSO for Cost Reduction	PSE	2019
10.	Madhav Goel (16MT000928)	Comparison of Different Power Electronic Converters in MPPT based PV System	PE&ED	2018
11.	Nishant Kumar (16MT000898)	Performance Analysis of Different MPPT Techniques in PV System	PE&ED	2018
12.	Tanushree Saha (16MT001290)	Fault Analysis in DC Side of the Photovoltaic System with Different MPPT Techniques and their Comparison	PE&ED	2018
13.	Girish Kumar Padhy (16MT000819)	Comparison of Fuzzy Logic Based MPPT with Different Rule Set or Rule Configuration	PE&ED	2018
14.	Samar Anand (16MT000748)	SPV - Boost Converter based BLDC Motor Water Pump Employing INC - MPPT	PE&ED	2018
15.	Ashish Kewat (15MT000239)	Automatic Generation Control of a Multi-Area Hydro-Thermal with Bees and Firefly Optimized PID Controller	PSE	2017
16.	Kaushik Chowdhury (15MT000374)	Sliding Mode based Load Frequency Control for Multi-Area Interconnected Power System Containing Renewable Energy	PSE	2017
17.	Abhishek Ratan	Design and Implementation of Closed Loop Current	PE&ED	2016

	(2014MT000576)	Control of a Three Phase Photovoltaic Grid Connected System		
18.	Shivangi Utkarsh (14MT000579)	Modeling and Simulation of Photovoltaic System in Standalone Mode and Grid Connected Mode	PE&ED	2016
19.	Shadab Usmani (2014MT000463)	Solution to Economic Load Dispatch using Particle Swarm Optimization	PSE	2016
20.	Pawan Kumar Sharma (2014MT000569)	Application of BBO Algorithm to Control Voltage and to Minimize Active Power Loss	PSE	2016
21.	Chandrakant Ray (2014MT000030)	Modelling and Simulation of Photovoltaic System in Grid Connected Mode	PE&ED	2016
22.	Manisha Das (2013MT0288)	Implementation of Synchronization Algorithm for the Three Phase Grid Connected Photovoltaic System with Load	PSE	2015
23.	Trishna Doley (2012MT0187)	Particle Swarm Optimization based DTC Induction Motor Drives	PSE	2014

9. Sponsored Research Projects

S. No.	Particulars	Sponsored by	Year	Amount (in Rs.)
1.	Study of Design and Simulation of Energy Efficient Induction Motor Drives	FRS Scheme, IIT(ISM) Dhanbad	2013	2.1 Lakhs
2.	Multi-Level Inverter (Five Level) based Solar Photovoltaic System for feeding Power to Induction Motor	MRS Scheme of TEQIP-II	2017	2.0 Lakhs

10. Participation in Administrative/Extra-curricular Activities

A. Institute Level

- Member, Committee for reducing carbon emissions of the institute
- Chief Hostel Warden (Jasper Hostel)
- Hostel Warden (Jasper Hostel)
- Member, Food and Catering Committee for III and BASANT 2019

B. Department Level

- Faculty In-charge of Electrical Technology Laboratory
- Member, DPGC

11. Conferences/Short Term Courses / Workshops Attended:

- Attended short term course on "Modeling and Control of Renewable Energy Sources", organized by the Department of Electrical Engineering, NIT Rourkela, during 4^{th} – 8^{th} June 2012.
- Fifth International Conference on Advances in Recent Technologies in Communication and Computing (ARTCom 2013), 20-21 Sept. 2013, Bangalore, India.

- Attended short term Course on "Applications of Power Electronics to Renewable Energy Systems and Micro Grids", organized by the Department of Electrical & Electronics Engineering, NIT, Trichy during 8th – 10th February 2015.
- Third International Conference on Recent Advances in information Technology (RAIT-2016), 03-05 March, 2016, Dhanbad, India.

12. Awards:

- Received the Best Paper Award for the paper titled "Reliability Assessment of Distribution System Considering Protection Coordination" in *2nd IEEE International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET 2022)* held at NIT Patna from 24 – 25 June 2022.

13. Research Publications

A. International Journals:

[1] Rajendra Kumar Sharma, **Bhukya Krishna Naick**, "A novel quasi oppositional artificial rabbit's optimization algorithm for optimal distributed generation allocation in radial distribution systems under different load models", Computers and Electrical Engineering, 122 (2025), 109965, https://doi.org/10.1016/j.compeleceng.2024.109965 (***Q2, IF: 4, SCIE***)

[2] Bhukya Krishna Priya, **Bhukya Krishna Naick**, N Ramasubramanian, "Enhancing the Lifetime of STT-RAM by IFTRP", Engineering Research Express, Vol. 6(2024), 045201, DOI: 10.1088/2631-8695/ad7d64

[3] Rani Kumari, **Bhukya Krishna Naick**, "Adaptive protection coordination in microgrid based on nature inspired meta-heuristic optimization algorithm", Engineering Research Express, vol. 6 (2024), 025345, DOI: https://doi.org/10.1088/2631-8695/ad5076.

[4] Janardhan Rao Moparthi, **Krishna Naick Bhukya**, Durga Prasad Chinta, Monalisa Biswal, "Enhancing transmission line protection with adaptive ANN-based relay for high resistance fault diagnosis", Electrical Engineering, 2024, pp. 1-24, DOI: https://doi.org/10.1007/s00202-024-02369-w (***Q3, IF: 1.6, SCIE***).

[5] Rani Kumari, **Bhukya K. Naick**, "Enhancing protection in AC microgrids: An adaptive approach with ANN and ANFIS models", Computers and Electrical Engineering, 115 (2024), 109103, DOI: https://doi.org/10.1016/j.compeleceng.2024.109103 (***Q2, IF: 4, SCIE***).

[6] Prasad Bhukya, **Krishna Naick Bhukya**, "Enhancing ventilation fan performance in underground coal mines: a hybrid approach", Electrical Engineering, 2024, pp. 1-24, DOI: https://doi.org/10.1007/s00202-024-02268-0 (***Q3, IF: 1.6, SCIE***).

[7] Rajendra Kumar Sharma, **Bhukya Krishna Naick**, "A Novel Artificial Rabbits Optimization Algorithm for Optimal Location and Sizing of Multiple Distributed Generation in Radial Distribution Systems", Arabian Journal for Science and Engineering, 202, DOI: https://doi.org/10.1007/s13369-023-08559-1 (***Q2, IF: 2.9, SCIE***).

[8] Rani Kumari, **Bhukya K. Naick** and Debomita Ghosh, "Reliability assessment of distribution system using Petri net for enhancement of situational awareness", Electric Power Systems Research, 224 (2023), 109739. DOI: https://doi.org/10.1016/j.epsr.2023.109739 (***Q2, IF: 3.9, SCIE***).

[9] **B. Krishna Naick**, K. Chatterjee and T.K. Chatterjee, "Fuzzy Logic Controller Based Maximum Power Point Tracking Technique for Different Configurations of Partially Shaded

Photovoltaic System", Archives of Electrical Engineering, Vol. 67, No. 2, 2018, pp. 307-320, DOI: 10.24425/119642

[10] **Krishna Naick Bhukya**, Kalyan Chatterjee and Tarun Kumar Chatterjee, "Assessment of MPPT techniques during the faulty conditions of PV system", Advances in Electrical and Electronic Engineering, Vol. 16, No.1, 2018, pp. 15-24, DOI: 10.15598/aeee.v16i1.2581

[11] **Bhukya Krishna Naick**, Tarun Kumar Chatterjee and Kalyan Chatterjee, "Performance Analysis of Maximum Power Point Tracking Algorithms Under Varying Irradiation", Int. Journal of Renewable Energy Development, Vol. 6, No.1, 2017, pp. 65-74, DOI: https://doi.org/10.14710/ijred.6.1.65-74

[12] **B. Krishna Naick**, T. K. Chatterjee and K. Chatterjee, "Fuzzy Logic Controller based PV System Connected in Standalone and Grid Connected Mode of Operation with Variation of Load", International Journal of Renewable Energy Research, Vol. 7, No. 1, 2017, pp. 311-322. https://doi.org/10.20508/ijrer.v7i1.5538.g6991

[13] Chaudhary Prakash Roy, **Bhukya Krishna Naick** and Gauri Shankar, "Comparative Study of Photovoltaic MPPT Algorithms", International Journal on Recent Trends in Engineering and Technology, Vol. 11, No. 1, July 2014, pp. 191-201.

B. International Conferences:

[1] Rani Kumari, **Bhukya K. Naick**, "Adaptive Protection Coordination Scheme for Distribution Networks with Distributed Generation", 2024 1st International Conference on Innovative Sustainable Technologies for Energy, Mechatronics, and Smart Systems (ISTEMS, 2024, 26-27 April 2024, Dehradun, India. DOI: 10.1109/ISTEMS60181.2024.10560193

[2] Rani Kumari, **Bhukya K. Naick**, "Enhancing Situational Awareness in Power Distribution System Using Fault Current Indicator", 2024 1st International Conference on Innovative Sustainable Technologies for Energy, Mechatronics, and Smart Systems (ISTEMS, 2024, 26-27 April 2024, Dehradun, India. DOI: 10.1109/ISTEMS60181.2024.10560147

[3] Rani Kumari, **Bhukya K. Naick**, "Protection Coordination Impact on Reliability of Distribution Systems with Distributed Energy Resources", 2024 Third International Conference on Power, Control and Computing Technologies (ICPC2T), 2024, 18-20 January 2024, Raipur, India. DOI: 10.1109/ICPC2T60072.2024.10475112

[4] J R Moparthi, S Kumar, **KN Bhukya**, "Microgrid Protection using Empirical Mode Decomposition and MRMR Feature Ranking Approach", 2023 5th International Conference on Energy, Power and Environment: Towards Flexible Green Energy Technologies (ICEPE), 2023, 15-17 June 2023, Shillong, India. DOI: 10.1109/ICEPE57949.2023.10201650

[5] Rani Kumari, **Bhukya K. Naick**, "Reliability Assessment of Distribution System Considering Protection Coordination", 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), 2022, 24-25 June 2022, Patna, India. DOI: 10.1109/ICEFEET51821.2022.9847765

[6] Neelam Kumari, Rani Kumari, **Bhukya K. Naick**, "Optimal Emplacement and Allocation of Distributed Generators by Using Ant Lion Optimization", 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), 2022, 24-25 June 2022, Patna, India. DOI: 10.1109/ICEFEET51821.2022.9848207

[7] P Srinivasa Rao Nayak, G Peddanna, K Kamalapathi, **Bhukya Krishna Naick**, "Analysis of Mutual Inductance Between Multi-Single Coupled Coils at Square Structure Using FEM", 2019 1st International Conference on Electrical, Control and Instrumentation Engineering (ICECIE), 25 Nov. 2019, Kuala Lumpur, Malaysia.

[8] Ranjeet Kumar Singh, Avinash Kumar and **B Krishna Naick**, "Optimised Solar Power Fed Induction Motor Drive for Water Pumping Application along with Load", The 6th International Electrical Engineering Congress (iEECON 2018), 07-09 March 2018, Krabi, Thailand.

[9] Avinash Kumar, Ranjeet Kumar Singh and **B Krishna Naick**, "A Highly Efficient PV and Fuel Cell Powered Full Bridge Bidirectional LLC Resonant Converter", The 6th International Electrical Engineering Congress (iEECON 2018), 07-09 March 2018, Krabi, Thailand.

[10] Raja Kumar Kedia and **B Krishna Naick**, "Review of Vehicle Route Optimisation", 2nd IEEE International Conference on Intelligent Transportation Engineering, 01-03 Sept. 2017, Singapore.

[11] Abdur Rahman Daanish and **B Krishna Naick**, "Implementation of Charging Station Based Electric Vehicle Routing Problem Using Nearest Neighbour Search Algorithm", 2nd IEEE International Conference on Intelligent Transportation Engineering, 01-03 Sept. 2017, Singapore.

[12] A. S. R. Lohith, **B. K. Naick**, T. K. Chatterjee and K.Chatterjee, "PEMFC Connected in Standalone Mode with Five Level Inverter", 2016 International Conference on Computing, Analytics and Security Trends (CAST), 19-21 December, 2016, Pune, India.

[13] **B. K. Naick**, Manisha Das, T. K. Chatterjee and K. Chatterjee, "Study and Implementation of Synchronization Algorithm in Three Phase Grid Connected PV System", 3rd International Conference on Recent Advances in information Technology (RAIT-2016), 03-05 March, 2016, Dhanbad, India.

[14] J. Harsha Vardhana and **B Krishna Naick**, "Optimization of PV MPPT Performance and DC Link Voltage Rippples Compensation using a Duty Cycle Modifier", IEEE International Conference on Recent Advances and Innovations in Engineering (ICRAIE-2014), 09-11 May 2014, Jaipur, India.

[15] C.P. Roy, **B.K. Naick** and G. Shankar, "Modified Three-Point Weight Comparison method for Adaptive MPPT of Photovoltaic Systems", Fifth International Conference on Advances in Recent Technologies in Communication and Computing (ARTCom 2013), 20-21 Sept. 2013, Bangalore, India.

Personal Details:

Date of Birth	: 04-07-1982
Father's Name	: Shri. B Satyanarayana
Mother' s Name	: Smt. B Lalitha

Permanent Address:

H.No 5-4-1432, Near P A Swamy Temple, Phase -1, Sharada Nagar, Vanasthalipuram, Hyderabad, Telangana, India – 500070.

Marital Status	: Married
Hobbies & Interests	: Listening to Music and Reading Books
Nationality	: Indian