

Dr. Deepak K. Naik

Assistant Professor

P.G. Department of Electronic Science · Berhampur University · Brahmapur · Odisha · India

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Academic Profile

Dr. Deepak K. Naik (Member, IEEE) is an Assistant Professor in the Department of Electronic Science at Berhampur University, Odisha, India, where he has been serving since 2016. He received the M.Sc. degree in Electronic Science from Berhampur University in 2007, the M.Tech. degree in Electronic Communication Engineering from C. V. Raman College of Engineering, Odisha, in 2013, and the Ph.D. degree in Electronic Science from Berhampur University in 2024. He qualified the UGC-NET with Junior Research Fellowship (JRF) in 2014.

His research focuses on planar and metasurface antenna technologies, broadband circularly polarized antennas, and characteristic mode analysis. His research interests also include evolutionary optimization techniques, electromagnetic analysis, and modal engineering of antenna structures for improving bandwidth, polarization, and radiation characteristics.

Research Interests: Microstrip Patch Antenna Design, Metasurface, Circularly Polarized Broadband Antennas, CMA Technique

Education

Ph.D.	2024
Berhampur University	
M.Tech.	2014
Electronic Communication Engineering · C. V. Raman Global University	
MSc	2007
Berhampur University	
B.Sc.	2005
Physics · D. D. College, Keonjhar	
+2	2002
PCMB · G. M. College, Sambalpur	
10th	2000
D. N. High School, Anandpur	

Academic & Professional Experience

Assistant Professor (Stage-III)

Feb 2026 – Present

Berhampur University

Web Administrator

Sep 2025 – Present

Berhampur University

To maintain Regular Website activities

Assistant Professor (Stage-II)

Feb 2021 – Feb 2026

Berhampur University · Electronic Science

Assistant Professor (Stage-I)

Feb 2016 – Feb 2021

Berhampur University · Electronic Science · Berhampur

Lecture

Aug 2007 – Dec 2016

C. V. Raman Polytechnic, Bhubaneswar · ETC · Bhubaneswar

Publications

Journal Articles

2026

- [1] S. Pani, B. Raut, B. K. Santi, D. C. Panda, D. K. Naik, and R. Swain, "In-band controlled circularly polarized wideband metasurface antenna using characteristic mode analysis," *AEU - International Journal of Electronics and Communications*, vol. 212, no. 156342, Jul., 2026, doi: [10.1016/j.aeue.2026.156342](https://doi.org/10.1016/j.aeue.2026.156342).
- [2] D. C. Panda, B. Raut, B. K. Santi, A. K. Sahu, D. K. Naik, and R. Swain, "Design of a circular polarized hexagonal patch antenna using coupled characteristic modes for sub-6 GHz applications," *Journal of Electromagnetic Waves and Applications*, 2026, doi: [10.1080/09205071.2025.2562126](https://doi.org/10.1080/09205071.2025.2562126).

2025

- [3] B. Raut, B. K. Santi, R. Swain, D. C. Panda, and D. K. Naik, "Characteristic Mode Inspired Compact Broadband Circularly Polarized Non-Uniform Metasurface Antenna for Sub-7 GHz Applications," *AEU - International Journal of Electronics and Communications*, vol. 200, Art. no. 155939, 2025, doi: [10.1016/j.aeue.2025.155939](https://doi.org/10.1016/j.aeue.2025.155939).
- [4] D. K. Naik, D. C. Panda, R. Swain, A. Muduli, and A. Pal, "Characteristic Mode Inspired Broadband Circularly Polarized Metasurface Antenna with Triple-Mode Excitation for Sub-6 GHz Applications," *Scientific Reports*, vol. 15, Art. no. 33965, 2025, doi: [10.1038/s41598-025-10155-2](https://doi.org/10.1038/s41598-025-10155-2).
- [5] D. C. Panda, B. K. Santi, B. Raut, D. K. Naik, and R. Swain, "A Novel Asymmetric Spoof Surface Plasmon Polariton Transmission Line for High Gain Endfire Radiation Using Phase Reversal Condition," *Progress In Electromagnetics Research C*, vol. 154, pp. 97-103, 2025, doi: [10.2528/PIERC24120604](https://doi.org/10.2528/PIERC24120604).
- [6] D. K. Naik, D. Charan Panda, R. Swain, A. Muduli, and S. Nanda, "Pac-Man-Shaped Patch-Driven Broadband Circularly Polarized Metasurface Antenna With CMA-Based Quadruple-Mode Excitation," *IEEE Access*, vol. 13, pp. 13644-13654, 2025, doi: [10.1109/ACCESS.2025.3526682](https://doi.org/10.1109/ACCESS.2025.3526682).

2024

- [7] S. Pani, D. C. Panda, D. K. Naik, and R. Swain, "A Shorting Post Loaded Symmetric Non-Uniform Metasurface Antenna for Broadband Circular Polarization," *AEU - International Journal of Electronics and Communications*, vol. 185, Art. no. 155416, 2024, doi: [10.1016/j.aeue.2024.155416](https://doi.org/10.1016/j.aeue.2024.155416).

2023

- [8] S. Patra, "Review on Different Shaped Graphene Nanoribbon Based Nano Interconnect for Next Generation Integrated Circuits," *Research Journal of Berhampur University*, vol. 6, pp. 2-11, 2023.
- [9] D. K. Naik, R. Swain, D. C. Panda, and R. K. Mishra, "CMA Approach for a DGS-Based Wideband Circular Patch Antenna With Low Cross Polarization," *IEEE Antennas and Wireless Propagation Letters*, vol. 22, no. 3, pp. 586-590, 2023, doi: [10.1109/LAWP.2022.3219084](https://doi.org/10.1109/LAWP.2022.3219084).

2022

- [10] D. K. Naik, A. K. Sahu, R. K. Parida, P. Raiguru, D. C. Panda, and R. K. Mishra, "Design of a Broadband U-Slot Loaded E-Shaped Patch Antenna Using Characteristic Mode Analysis," *AEU - International Journal of Electronics and Communications*, vol. 154, Art. no. 154310, 2022, doi: [10.1016/j.aeue.2022.154310](https://doi.org/10.1016/j.aeue.2022.154310).
- [11] R. K. Parida, A. K. Sahu, D. K. Naik, P. Raiguru, D. C. Panda, and R. K. Mishra, "Compact Reconfigurable Antenna System for Spectrum Interweaved Cognitive Radio," *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 32, no. 7, 2022, doi: [10.1002/mmce.23183](https://doi.org/10.1002/mmce.23183).

2020

- [12] R. Swain, D. K. Naik, and A. K. Panda, "Low-Loss Ultra-Wideband Beam Switching Metasurface Antenna in X-Band," *IET Microwaves, Antennas & Propagation*, vol. 14, no. 11, pp. 1216-1221, 2020, doi: [10.1049/iet-map.2019.0994](https://doi.org/10.1049/iet-map.2019.0994).

Conference Papers

2025

- [13] B. Raut, B. K. Santi, D. K. Naik, and D. C. Panda, "A Novel Spiral Radiator-Based Quad-Port MIMO CP Antenna Using Characteristic Mode Analysis (CMA) for Wi-Fi 6E Applications," in *Proc. 2025 IEEE Microwaves, Antennas, and Propagation Conference (MAPCON)*, 2025, doi: [10.1109/MAPCON65020.2025.11426676](https://doi.org/10.1109/MAPCON65020.2025.11426676).
- [14] B. K. Santi, B. Raut, D. C. Panda, and D. K. Naik, "A Planar Quasi-Yagi Antenna with Enhanced Bandwidth for 5G NR FR2 mmWave Coverage," in *Proc. 2025 IEEE Microwaves, Antennas, and Propagation Conference (MAPCON)*, 2025, doi: [10.1109/MAPCON65020.2025.11426678](https://doi.org/10.1109/MAPCON65020.2025.11426678).
- [15] P. Panigrahy, D. K. Naik, and D. C. Panda, "CF-DAS Based Microwave Imaging with a Flexible SSPP Antenna," in *Proc. 2025 IEEE Microwaves, Antennas, and Propagation Conference (MAPCON)*, 2025, doi: [10.1109/MAPCON65020.2025.11426582](https://doi.org/10.1109/MAPCON65020.2025.11426582).
- [16] P. Panigrahy, D. K. Naik, and D. C. Panda, "Diamond-Slot Modulated SSPP Leaky-Wave Antenna," in *Proc. 2025 5th IEEE International Conference on Applied Electromagnetics, Signal Processing, & Communication (AESPC)*, 2025, doi: [10.1109/AESPC67542.2025.11326866](https://doi.org/10.1109/AESPC67542.2025.11326866).

2024

- [17] B. K. Santi, D. C. Panda, B. Raut, and D. K. Naik, "A Wide-Angle Scanning Leaky-Wave Antenna Based on SSPP With Stable Gain," in *Proc. 2024 IEEE Calcutta Conference (CALCON)*, 2024, doi: [10.1109/CALCON63337.2024.10914096](https://doi.org/10.1109/CALCON63337.2024.10914096).
- [18] G. S. Patnaik, D. C. Panda, and D. K. Naik, "A UWB MIMO Antenna Using h-Shaped Fractals," in *Proc. 2024 IEEE 4th International Conference on Applied Electromagnetics, Signal Processing, & Communication (AESPC)*, 2024, doi: [10.1109/AESPC63931.2024.10872175](https://doi.org/10.1109/AESPC63931.2024.10872175).
- [19] N. Sahoo, S. Patra, A. K. Sahu, M. Mishra, and D. K. Naik, "Modulation of I-V Characteristics in U-Shaped Armchair Graphene Nanoribbon-Based Tunnel Diode," in *Proc. 2024 IEEE International Conference of Electron Devices Society Kolkata Chapter (EDKCON)*, 2024, doi: [10.1109/EDKCON62339.2024.10870627](https://doi.org/10.1109/EDKCON62339.2024.10870627).

2023

- [20] D. K. Naik, S. Pani, A. K. Sahu, and D. C. Panda, "A New Approach for CAD Modelling of Resonant Frequency of Microstrip Antenna Using Multigene Genetic Programming," in *Proc. Journal of Physics: Conference Series*, vol. 2471, Art. no. 012006, 2023, doi: [10.1088/1742-6596/2471/1/012006](https://doi.org/10.1088/1742-6596/2471/1/012006).

2021

- [21] D. K. Naik, A. K. Sahu, R. K. Parida, D. C. Panda, and R. K. Mishra, "Knowledge-Embedded MGGP Model for Resonant Frequency of Microstrip Antenna," in *Proc. 2021 IEEE 2nd International Conference on Applied Electromagnetics, Signal Processing, & Communication (AESPC)*, 2021, doi: [10.1109/AESPC52704.2021.9708521](https://doi.org/10.1109/AESPC52704.2021.9708521).
- [22] S. Pani, A. K. Sahu, D. K. Naik, R. K. Parida, and D. C. Panda, "Metasurface for Independent Control of Reflection Amplitude," in *Proc. 2021 IEEE 2nd International Conference on Applied Electromagnetics, Signal Processing, & Communication (AESPC)*, 2021, doi: [10.1109/AESPC52704.2021.9708485](https://doi.org/10.1109/AESPC52704.2021.9708485).
- [23] A. K. Sahu, R. K. Parida, D. K. Naik, S. Pani, and D. C. Panda, "Ku-Band Tunable Bandstop Filter Using RF MEMS," in *Proc. 2021 IEEE 2nd International Conference on Applied Electromagnetics, Signal Processing, & Communication (AESPC)*, 2021, doi: [10.1109/AESPC52704.2021.9708463](https://doi.org/10.1109/AESPC52704.2021.9708463).

2020

- [24] A. K. Sahu, R. K. Parida, R. K. Mishra, D. K. Naik, and D. C. Panda, "Extraction of DMTL Equivalent Circuit Parameters Using SMP SO," in *Proc. 2020 IEEE International Women in Engineering Conference on Electrical and Computer Engineering (WIECON-ECE)*, 2020, doi: [10.1109/WIECON-ECE52138.2020.9397931](https://doi.org/10.1109/WIECON-ECE52138.2020.9397931).

2019

- [25] R. K. Parida, A. Kumar Sahu, D. K. Naik, N. K. Sahoo, D. C. Panda, and A. Muduli, "A UWB and Multiband Reconfigurable Antenna for Application in Cognitive Radio," in *Proc. 2019 IEEE Indian Conference on Antennas and Propagation (InCAP)*, 2019, doi: [10.1109/INCAP47789.2019.9134475](https://doi.org/10.1109/INCAP47789.2019.9134475).

2017

- [26] D. C. Panda, A. K. Sahu, R. K. Mishra, D. K. Naik, and S. K. Dash, "MEMS Distributed Transmission Line Discontinuity Parameter Extraction Using QUCS Equation Defined Devices," in *Proc. 2017 IEEE Applied Electromagnetics Conference (AEMC)*, 2017, doi: [10.1109/AEMC.2017.8325740](https://doi.org/10.1109/AEMC.2017.8325740).

2014

- [27] D. K. Naik and D. K. Rout, "Outdoor Image Enhancement: Increasing Visibility Under Extreme Haze and Lighting Condition," in *Proc. 2014 IEEE International Advance Computing Conference (IACC)*, 2014, doi: [10.1109/IAdCC.2014.6779476](https://doi.org/10.1109/IAdCC.2014.6779476).

Book Chapters

2026

- [28] D. K. Nayak, A. Muduli, D. K. Naik, N. Mukherjee, "Design and Evaluation of an RF Energy Harvester for Low Power Applications Operating in the 2.4 GHz (Wi-Fi) Frequency Band," in *Emerging Trends in Smart Computing, Communication and Automation*, CRC Press, Sep., 2026.

Patents

Wireless Smart Meter System

Dr. Deepak K. Naik and et.al

Indian Patent · Granted · India

Research Projects

Design of a low-cost circularly polarized metasurface antenna for 5G/6G WiFi access points required in rural and semiurban areas	2025
DST, Govt. of Odisha · PI	
Design of low-cost metasurface-based circularly polarized patch antennas for WiFi and 5G communication in rural areas	2024
Berhampur University · PI	

Awards & Recognition

Publication in High Impact Factor Journal	2026
Berhampur University	
Award for publication with I.F. (Faculty) for the year 2025, on the occasion of 60th Foundation Day, 2026, Berhampur University	
Outstanding Innovation Award - 2025	2026
Berhampur University	
Award for outstanding innovation in Science for the year 2025, on the occasion of 60th Foundation Day, 2026, Berhampur University	
Best Poster Award	2025
Berhampur University	
Best Poster Award (1st Position) in Physical Science at Odisha Research Conclave - 2025	

Research Supervision

Subham Pradhan	Completed
PhD · Design of Parasitic Metasurface for High-Purity Circular Polarization	
Pujarani Mahanta	Completed
PhD · Thermal Alert System for Wildlife & Wildfire	
Nityananda Singh	Completed
PhD · DIP-Point: Digital Image Processing Pointing System	
Siba Behera	Completed
PhD · Massive MIMO for Next-Generation Wireless Network: A Review	
Gyanaranjan Swain	Completed
PhD · Scalability and Innovation Gigantic MIMO System for 6G Communication	
Guruprasad Pradhan	Completed
PhD · Recent Advances in 6G Technology	
Baisali Patra	Completed
MSc · Metamaterial based biosensor for genome detection in THz domain	

Pritee Panigrahy PhD	Ongoing
Bikash K. Santi PhD · RCS Computation	Ongoing
B. Kirtipratyush Patnaik PhD · Graphene Nano Ribon	Ongoing
Gauri S. Patnaik PhD · Compact MIMO Antennas	Ongoing
Biku Raut PhD · Broadband Circularly Polarized Metasurface Antennas	Ongoing
Amit Amartyaranjan Das MSc · Mutual Coupling Reduction in Two-Port Circular Patch MIMO Antenna	Completed
Bijayalaxmi Sahoo MSc · Broadband Low-RCS Linearly Polarized Antenna Realized by Non-uniform Metasurface	Completed
Biku Raut MSc · Design and Optimization of a Single-Layer Metasurface for Wideband CP Antenna Applications	Completed
Girija Nandini Behera MSc · Dual Band Circularly Polarized Patch Antenna with Asymmetric Metasurface	Completed
Subham Pattanaik MSc · Image Segmentation Using Recurrent Neural Network	Completed
Soubhagya Ranjan Behera MSc · Image Segmentation using Convolutional Neural Network	Completed
Soumyaprava Panigrahi MSc · A Review on Optimization Technique: Past, Present, and Future	Completed
Dibyabhanjani Sasmal MSc · Study of Mutual Coupling Reduction using MIMO Technology	Completed
Jeevan Kumar Yadav MSc · Review on Mutual Coupling Reduction Technique for MIMO Antennas	Completed
Alisha Rani Panda MSc · Design of Dual Band Flexible Antenna (U-Shaped) for WLAN Applications using cst studio suite	Completed
G. Pandab Reddy MSc · A Multiband Patch Antenna with C-Shaped Parasitic Strip	Completed
K. S. Ankita MSc · Analysis and Optimization of Circular Polarized Patch using Characteristic Mode Analysis	Completed
M. Tapaswini MSc · Design of Simple Multiband Antenna with a Parasitic C-Shaped Strip	Completed

Mrutyunjaya Padhy	Completed
MSc · A Triangular Microstrip Patch Antenna using Computer Simulation Technology (CST)	
Rajesh Kumar Sahu	Completed
MSc · A Triangular Microstrip Patch Antenna using Computer Simulation Technology (CST)	
Trayolaxmi Panda	Completed
MSc · TBA	
Akash Kumar Pradhan	Completed
MSc · TBA	
Anshuman Dash	Completed
MSc · TBA	
Rakesh Kumar Jena	Completed
MSc · TBA	
Saumya Ranjan Jena	Completed
MSc · TBA	
Susmita Pattanaik	Completed
MSc · TBA	
Brata Sundar Panda	Completed
MSc · Detecting Handwriting using RNN	
Manorama Sabar	Completed
MSc · Software Defined Radio (SDR)	
Rakesh Kumar Digal	Completed
MSc · Differentiate Cat and Dog using CNN	
Silpa Shu	Completed
MSc · Software Defined Radio (SDR)	
Babul Naik	Completed
MSc · PID Control Line Follower Robot	
Ramakrishna Mahapatra	Completed
MSc · PID Control Line Follower Robot	
Bandana Mohapatra	Completed
MSc · Blind Stick using Arduino Nano	
Bhandi Sunita	Completed
MSc · Home Automation using Arduino UNO	
Jagdish Nayak	Completed
MSc · Fruit Identification and Detection using Segmentation Technique for Machine Level Intelligence using MATLAB	

Sandip Kumar Behera MSc · Design of OFDM Transmitter and Receiver System in Mobile Communication by using SIMULINK	Completed
Deepali Jena MSc · Implementation of ALU in VHDL Code using FPGA SPARTAN-6	Completed
Rutuparnna Manasingh MSc · Underwater Image Enhancement via Channel Prior and Histogram Equalization using MATLAB	Completed
Sucheta Hota MSc · Attendance Management System using Android	Completed

Professional Service

Reviewer Professional Service · Springer Nature · Scientific Reports	2025
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