

**Dr. SANDEEP CHOUDHARY, PhD**  
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School of Engineering and Technology  
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## Education

**Ph.D.** IIT, Indore, India 07/2017-11/2021  
Thesis Title: Optical Instrumentation for Fluorescent Biosensors

- A cost-effective color sensor-based device is developed for detecting fluorescence response of biosensors for food sample monitoring and health care diagnostic.

**MTech.** IIT, Kharagpur, India 07/2015-06/2017  
(Biomedical Engineering)  
Thesis Title: Studies on design & development of a microsecond repetitive pulse generator for electrochemotherapy

**BTech.** SGSITS, Indore, India 2010-2014  
(Biomedical Engineering)  
Major Project: Design and implementation of digital stethoscope

## Professional Work Experience

Assistant Professor	Central University of Rajasthan, India	11/2022-Present
Assistant Professor	SGSITS, Indore, India	09/2022-11/2022
Research Associate	IIT Indore, India	12/2021 – 09/2022
Working on the development of polarized angular light scattering (Raman scattering) and microfluidic technology for bovine sperm sexing.		
Teaching Assistant	IIT Indore, India	07/2017 – 11/2021
Working as a TA for Biosciences subject, my responsibilities consisted of taking tutorials, doubt sessions, and discussions regarding the subject.		

## Awards and Owners

- Got MP Young Scientist Award in the 37<sup>th</sup> edition by M.P. Council of Science and Technology (March 2022)
- Qualified UGC-NET (Assistant Professor) in December-2019.
- Secured All India Rank of 700 (GATE score- 537) in GATE-2015 in Instrumentation Engineering.

## Patents

**Choudhary, S., Vyas, T., Joshi, A.\***, "Portable Biosensing System And Method For Milk Spoilage And Adulteration Detection" Indian Provisional Patent Application No. 202121023242 dated May 25, 2021.

## Publications (Peer Reviewed)

1. Vyas, T., Jaiswal, S., **Choudhary, S.**, Kodgire, P., & Joshi, A. (2024). Recombinant Organophosphorus acid anhydrolase (OPAA) enzyme-carbon quantum dot (CQDs)-immobilized thin film biosensors for the specific detection of Ethyl Paraoxon and Methyl Parathion in water resources. *Environmental Research*, 243, 117855.
2. **Choudhary, S.**, Vyas, T., Joshi, A. (2024). Point-of-care enzymatic biosensors based on fluorescent thin films for determination of glucose, urea, and pH. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*. (Manuscript Number: SAA-D-23-02520, Under Revision).
3. Vyas, T., Mehta, A., **Choudhary, S.**, Gogoi, M., & Joshi, A. (2023). Evaluation of Phthalic acid Tri-ethylene diamine (TED) and Folic acid-based carbon quantum dots for detection of heavy metals in water resources using fiber-optic instrumentation. *Environmental Technology*, 1-35.
4. Vyas, T., **Choudhary S.**, Sharan R. S., Joshi A. (2023). Fiber-Optic Detection of Aluminium and Copper in Real Water Samples using Enzyme-Carbon Quantum Dot (CQD) based Thin Film Biosensors. *ACS ES&T Engineering*.
5. **Choudhary, S.**, & Joshi, A. (2022). Development of an embedded system for real-time milk spoilage monitoring and adulteration detection. *International Dairy Journal*, 127, 105207.
6. **Choudhary, S.**, Joshi, B., & Joshi, A. (2021). Translation of carbon dot biosensors into an embedded optical setup for spoilage and adulteration detection. *ACS Food Science & Technology*, 1(6), 1068-1076.
7. Pandey, G., **Choudhary, S.**, Chaudhari, R., & Joshi, A. (2020). Ultrasonic atomizer-based development of pH sensor for real-time analysis. *Scientific reports*, 10(1), 1-11.
8. Pandey, G., Chaudhari, R., Joshi, B., **Choudhary, S.**, Kaur, J., & Joshi, A. (2019). Fluorescent Biocompatible platinum-porphyrin-doped polymeric hybrid particles for oxygen and glucose biosensing. *Scientific reports*, 9(1), 1-12.
9. **Choudhary, S.**, Joshi, B., Pandey, G., & Joshi, A. (2019). Application of single and dual fluorophore-based pH sensors for determination of milk quality and shelf life using a fibre optic spectrophotometer. *Sensors and Actuators B: Chemical*, 298, 126925.

## Book Chapters

1. Chauhan S.<sup>#</sup>, Patel P.<sup>#</sup>, Mathur P, **Choudhary, S.\***(2023). Biosensors: Role and application in green technologies. In *Microbial Approaches for Sustainable Green Technologies* (pp. 107-136). *CRC Press*.
2. **Choudhary, S.<sup>#</sup>**, Vyas, T.<sup>#</sup>, Kumar, N., & Joshi, A. (2023). Point-of-Care Biosensors for Glucose Sensing. In *Nanobiosensors for point-of-care medical diagnostics* (pp. 107-136). Singapore: Springer Nature Singapore.
3. **Choudhary, S.**, Pandey, G., Mukherjee, R., & Joshi, A. (2019). Biomedical instrumentation: focus on point-of-care devices. In *Biomedical Engineering and its Applications in Healthcare* (pp. 297-326). Springer, Singapore.
4. **Choudhary, S.<sup>#</sup>**, Kaur, J.<sup>#</sup>, Chaudhari, R., Jayant, R. D., & Joshi, A. (2019). Enzyme-based biosensors. In *Bioelectronics and Medical Devices* (pp. 211-240). Woodhead Publishing.

## International Conference Papers

- **Choudhary, S.,** & Vyas, T. (2021). Fluorescence-based sensing assay for point of care detection of healthcare parameters in food samples. *SPAST Abstracts, 1*(01).

## International Conference presentations/Invited Talk/Session Chair

- Delivered a Lecture on 'Biosensors' in an International conference on *Biomaterials and Health care* as an Invited Speaker at Rishikesh, Uttarakhand (In association with IIT Roorkee) (13-15 April 2023).
- Presented poster in International Conference on Emerging Areas in Biosciences and Biomedical Technologies (eBBT-2) at IIT Indore. (February 7-9, 2020).
- Presented poster in Symposium on "Emerging Areas in Biosciences and Biomedical Technologies (eBBT)" at IIT Indore. (January 5-6, 2018).

## Mentoring Experience

- Mentor more than ten MSc, MTech., and BTech. students for dissertation, internships, and projects during 2017 to 2021 at IIT Indore.
- Mentor five BTech Students for dissertation (major project) at Central University of Rajasthan during 2023-24.

## Referees

- Dr. Abhijeet Joshi  
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Department of Biosciences & Biomedical Engineering,  
Indian Institute of Technology, Indore  
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- Prof. Amit Kumar  
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