



Shaheed Rajguru College of Applied Sciences for Women
University of Delhi
Faculty Profile

Name	Dr. Himani Dua Sehgal	
Designation	Assistant Professor	
Email	himani.dua@rajguru.du.ac.in duahimani1188@gmail.com	
Degree	Institution	Year
Ph.D.	Department of Electronic Science, South Campus, University of Delhi	2024
M.Sc. (Electronics)	Department of Electronic Science, South Campus, University of Delhi	2011
B.A.Sc. (Electronics)	Shaheed Rajguru College of Applied Sciences, University of Delhi, Delhi	2009
Areas of Interest / Specialization		
Modelling, simulation and characterization of advanced deep submicron & nanoscale semiconductor devices applicable to bio-sensing, gas sensing and radiation sensing.		
Minor Research Projects Completed		
- Guided the Innovation Project “<i>Development of e-resources on standard procedure of operation and applications of important electronic devices used by undergraduate science students</i>” (Project code SRCA203) Delhi University under the Vice Chancellor’s Innovation Project scheme 2013-14 (Amount :4.5 Lakh). - Guided the Innovation Project “<i>Low-cost eco-friendly solar inverter-A Standalone solar power system for households</i> (Project code SRCA316)” Delhi University under the Vice Chancellor’s Innovation Project scheme 2015-16 (Amount :4.5 Lakh).		
Publications Profile		
Sehgal, H.D., Pratap, Y. & Kabra, S. Modeling and virtual fabrication of conducting polymer gate Junctionless FinFET based poisonous gas detector. <i>Microsystem Technol</i> (2025). https://doi.org/10.1007/s00542-025-05875-4.		

- H. D. Sehgal, Y. Pratap, M. Gupta and S. Kabra, "Performance Investigation of Novel Pt/Pd-SiO₂ Junctionless FinFET as a High Sensitive Hydrogen Gas Sensor for Industrial Applications," in *IEEE Sensors Journal*, vol. 21, no. 12, pp. 13356-13363, 15 June 2021, doi: 10.1109/JSEN.2021.3067801.
- H. D. Sehgal, Y. Pratap, M. Gupta and S. Kabra, "Performance Analysis and Optimization of Under-Gate Dielectric Modulated Junctionless FinFET Biosensor," in *IEEE Sensors Journal*, vol. 21, no. 17, pp. 18897-18904, 1 Sept. 2021, doi: 10.1109/JSEN.2021.3090263.
- H. D. Sehgal, Y. Pratap and S. Kabra, "Detection of Breast Cancer Cell-MDA-MB-231 by Measuring Conductivity of Schottky Source/Drain GaN FinFET," in *IEEE Sensors Journal*, vol. 22, no. 6, pp. 6108-6115, 15 March 2022, doi: 10.1109/JSEN.2022.3148117.
- Published a paper "Development of E-resource on standard procedure of operation and applications of important electronic devices used by undergraduate students" in DU journal of undergraduate Research and innovation in 2015.
- Ms. Himani Dua, Dr. Amita Kapoor, Dr. Sneha Kabra, *E-Learning Based Approach for Teaching Experiments in Electronics*, Striving & Thriving Towards Diffusion of Student-Driven Research in Science and Technology for Inspired Learning, Pg 321-323, 16-17 October 2014 (ISBN: 978-81-7273-958-4).
- Dr. Sneha Kabra, Dr. Amita Kapoor, Ms. Himani Dua, *Development of e-learning based module for teaching practicals in electronics to science and engineering students in India*, International Conference of Teaching, Assessment and Learning (TALE), 2014, Wellington, New Zealand, Copyright- 2014 IEEE, Pg 173-174, 08-10 December 2014 (ISBN: 978-1-4799-7672-0).
- Dr. Amita Kapoor, Dr. Sneha Kabra, Ms. Himani Dua, *Development, use and impact of E-learning modules for teaching Electronics to undergraduate girl students: A case study*, MOOC Innovation and Technology in Education (MITE), Copyright- 2014 IEEE, Pg 215-218, 19-20 December 2014. (ISBN: 978-1-4799-6876-3).
- Presented a paper titled, "Low-cost eco-friendly solar inverter –a standalone solar power system for . households" in Recent Trends in Instrumentation and Electronics organized by SRCASW on 5th & 6th October 2016.
- Presented a paper titled, "Hollow Flashlight-Thermoelectrically Powered Torch" in Second National Conference on Recent Developments in Electronics (NCRDE-2017) organized by Department of Electronic Science, South Campus, University of Delhi on 16th and 17th February 2017.
- Presented a poster titled "Impact of different Cavity Structures on Bio-Sensing Response of Junctionless FinFET" in conference ICEE organized by IISc. Bangalore from 16th to 19th December 2018.
- Presented a paper titled "Comparative Analysis of Dielectric Modulated Junctionless FinFET Biosensor and Junctionless DG MOSFET Biosensor for Medical Instrumentation" in 2019 International Conference on Power Electronics, Control and Automation (ICPECA), JMI, New Delhi, from 16th-17th Nov 2019.
- Presented a Paper "Comparative Analysis of Junctionless FinFET and Inverted Mode FinFET as Phosphine (PH₃) Gas Sensor," *2020 5th International Conference on Devices, Circuits and Systems (ICDCS)*, 2020, pp. 193-197, doi: 10.1109/ICDCS48716.2020.243579.

- Presented a poster titled-“COVID-19 VACCINE: ADDRESSING HESITENCY, DEVELOPMENT & EFFECTIVITY” in National Seminar, Vishva Guru Bharat: Exploring the Glorious Past, Promising Present and Future Roadmap organized by Shaheed Rajguru College of Applied Science for Women, University of Delhi on 23-24 March 2022.
- Presented a paper titled "Detection of poisonous gases using JL FinFET with conducting gate polymer," 2022 in 6th International Conference on Devices, Circuits and Systems (ICDCS), 2022, pp. 440-444, doi: 10.1109/ICDCS54290.2022.9780853

Awards and Distinctions

- Best paper award, IEEE 3rd International Conference on VLSI Systems, Architecture, Technology and Applications (VLSI SATA), 16-17 Dec 2022, Bangalore, for paper “Comparative study of Junctionless and Inverted Mode FinFET for detection of breast cancer cell HS578t at microwave frequency
- Awarded best paper award for paper titled "Detection of poisonous gases using JL FinFET with conducting gate polymer," 2022 in 6th International Conference on Devices, Circuits and Systems (ICDCS), 2022, pp. 440-444, doi: 10.1109/ICDCS54290.2022.9780853.
- University topper in Bachelor of Applied Science (Electronics) Course in 2006-09 in Graduation.
- Won many prizes in inter college competitions in Dance competitions, Skit.
- Served the post of **Class Representative** in 2006-2007 and **Vice President** in student council (2007-2008) in graduation.
- Have organized many events like Annual day, Cultural day , Electromania at graduation