

## Curriculum vitae

**Dr. Gaurav Sapra, Ph.D**

*Assistant Professor,  
Electrical and Electronics Engineering,  
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Date of Birth : 16<sup>th</sup> May 1981

Research Areas : Sensor Fabrication, Nanomaterials and Polymer Nanocomposites, Biomedical Devices, Active Vibration Control, Communication Engineering

Employment Experience : Industrial: 3 years  
Teaching: 12 years

Courses Taught : At Undergraduate Level (B.E.):  
Analog electronics, Basic electronics, Wireless communication, Operating system, Communication theory, Digital signal processing, Microcontrollers & PLC, Electronic System design, Embedded system design, Analog & digital communication and Communication engineering

Supervisions : Undergraduate (B.E.) Projects: 50  
Postgraduate (M.E.) Thesis Supervision: 3 (Completed) and 1(Ongoing)  
Doctorate Supervision: 01(Ongoing) (DST- Inspire Fellow)

**Educational Qualifications:**

<b>Examination/Degree</b>	<b>University</b>	<b>Year of Passing</b>	<b>% Marks</b>
Ph.D. (Faculty of Engineering & Technology) <i>(Title- 'Design of Temperature Robust Active Vibration Controller')</i>	Panjab University, Chandigarh	<b>2019</b>	-
M.E. (Electronics & Communication Engineering)	PEC University of Technology, Chandigarh	<b>2006</b>	<b>68.2</b>
B.E. (Electronics & Communication Engineering)	Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal	<b>2003</b>	<b>76.87</b>
Graduate Aptitude Test in Engineering (GATE)	National Level Examination	<b>2004</b>	<b>97.32 percentile (All India Rank 1000)</b>

**Work Experience:**

<b>Institution/Company</b>	<b>Designation</b>	<b>Period</b>
University Institute of Engineering and Technology (U.I.E.T.), Panjab University, Chandigarh, India	Assistant Professor, Electrical and Electronics Engineering	July, 2010 to Till Date
University Institute of Engineering and Technology (U.I.E.T.), Panjab University, Chandigarh, India	Assistant Professor, Electronics Engineering	July, 2009 to May, 2010
Cognizant Technology Solutions, Chennai , India	Programmer Analyst	Oct, 2006 to June 2009

## Research Projects and Consultancies:

1. Research Project entitled " A sensor array to characterise the mechanical properties of lower limb prosthetic components in vivo" Funded by Nottingham Trent University, UK, 2021 (for GBP 7,000).
2. Research Project entitled " Self-Powered Wearable Bio-Chemical Sensors For Disease Diagnosis" Funded by Nottingham Trent University, UK, 2021 (for GBP 10,000).
3. Research Project entitled "Management of waste PV Modules: Separation and recovery of different fragments" , funded by DST and Renewable Energy , Chandigarh Administration ,2021 (for Rs 1,50,000).
4. Consultancy Project entitled "Ultraviolet Sanitization Machine" funded by M/s TaskBiz, Chandigarh, 2020 (for Rs 35,000).
5. DST INSPIRE Fellowship to Ms. Akshpreet Kaur entitled "Fabrication of a Biomechanical Energy Harvester for Implantable Cardiac Pacemaker" to pursue Doctorate of Philosophy (Ph.D) in the field of Biomedical Electronics under the supervision of myself and Dr. Ankur Gupta, Assistant Professor, PGIMER, Chandigarh Funded by DST, India (2019-2023).
6. Consultancy Project entitled "Retrofitting for automation of a shaft straightening Machine" funded by M/s Emmbros Automotive Pvt. Ltd, Pvt. Limited, Panchkula, Haryana, 2019 (for Rs 1,00,000).
7. Consultancy Project entitled "Nut bolt sorting machine" in collaboration with leading automotive fastener industry, Ludhiana, 2019.
8. Developed a research project entitled "Prosthetic glove for rehabilitation" in collaboration with Saket Hospital, Panchkula and CSIO-CSIR, Chandigarh, 2019.
9. Consultancy Project entitled "Design and development of tinkerable projects for school students" funded by M/s Saksham Creative Education Pvt. Limited, Chandigarh, 2018 (for Rs 1,25,000).
10. Developed a research project entitled "Design and implementation of high voltage power supply for electrospunners" in collaboration with CSIO-CSIR, Chandigarh, 2018.
11. Pilot project entitled "Automatic Car parking system: A Case Study of Under Ground Sector 17 Parking" and gave series of presentation in Department of Urban planning, MC office, UT. Also presented in front of UT finance secretary and MC Commissioner along with their staff member on 26th June 2012.

## Awards and Recognition:

1. Awarded **Best Research Paper Award** to our paper, “International Conference on Aspects of Materials Science and Engineering (ICAMSE 2021, Elsevier) , Panjab University, Chandigarh, March 5 -6, 2021.
2. Awarded **Best Paper Presentation Award** to our paper, “International Conference on Aspects of Materials Science and Engineering (ICAMSE 2020, Elsevier) , Panjab University, Chandigarh, May 29-30, 2020.
3. Awarded **Best Paper Award**, “International Conference on Computational Condensed Matter Physics and Materials Science (IWCCMP-2015), ABV-IIITM, Gwalior, 18-22<sup>nd</sup> October 2015.
4. Awarded **Best Oral Presentation Award**, “International Conference on Advanced Materials (ICAM-2019), Jamia Milia Islamia, New Delhi,
5. Awarded **Research Award** by University Institute of Engineering and Technology, Panjab University, Chandigarh in academic year 2018-2019.
6. Awarded **Certificate of Appreciation** by University Institute of Engineering and Technology, Panjab University, Chandigarh in academic year 2017-2018.
7. Project proposal got selected in Indian Nanoelectronics User Program (INUP) and has undergone one-week Hands on training workshop on “Nanofabrication Technologies” at Center for Nano Science and Engineering, Indian Institute of Science, Bangalore, from 3<sup>rd</sup> to 11<sup>th</sup> August 2015.

## List of Publications in Journals (Selected papers)

1. Kaur A, Sapra G and Gupta A. *Recent Progress on Energy Harvesters for Biomedical Applications*. Journal of Circuits, Systems and Computers. 2021: p. 2130010. **World Scientific** (SCI Expanded 1.36). **DOI:** 10.1142/S0218126621300105.
2. Sharma P and Sapra G. *Performance analysis of graphene based operational amplifier with conventional amplifier for future communications*. Materials Today Proceedings 2021, 45: p. 4084-4086. **Elsevier** (Scopus 1.24). **DOI:** 10.1016/j.matpr.2021.03.118.
3. Prakash V, Kumar P, Sharma P and Sapra G. *Design and implementation of flyback converter as high voltage power supply for nanofibers production*. Materials Today Proceedings 2021, 45: p. 5285-5291. **Elsevier** (Scopus 1.24). **DOI:** 10.1016/j.matpr.2021.01.857.
4. Sapra G, Chaudhary V, Kumar P, Sharma P and Saini A. *Recovery of silica nanoparticles from waste PV modules*. Materials Today Proceedings 2021, 45: p. 3863-3868. **Elsevier** (Scopus 1.24). **DOI:** 10.1016/j.matpr.2020.06.093.
5. Singh N, Sinha A, Sharma P and Sapra G. *Investigation of electronic properties of phosphorus doped zigzag graphene nanoribbons for nano applications*. AIP Proceedings 2020, **2276**(1): p. 020050. **AIP Publishing LLC** (Scopus). **DOI:** 10.1063/5.0024286.
6. Sapra G, Singh J, Sharma M and Vig R. *Dynamic strain measurements on a cantilevered beam using CNT based strain sensor*. AIP Proceedings 2020, **2273**(1): p. 040004. **AIP Publishing LLC** (Scopus). **DOI:** 10.1063/5.0025683.
7. Jolly N, Gupta G, Sapra G, and Kumar P. *Measurement of Joint Angle for Physical Therapy using a Wearable Carbon Nanotube Based Sensor* Manufacturing Technology Today 2020, **19** (5-6): p. 25-30. **CMTI India** (UGC Care List).
8. Sareen A, Singh A, Sinha A, Arya A, Arya A, Sapra G, Kumar R, Kumar P and Singh D. *Design and fabrication of prosthetic glove for hand rehabilitation*. Materials Today Proceedings 2020, 28: p. 1612-1615. **Elsevier** (Scopus 1.24). **DOI:** 10.1016/j.matpr.2020.04.849.
9. Singh N, Sapra G and Kumar P. *Investigation of properties of AGNR using N type doping for electronic applications*. Materials Today Proceedings 2020, 28: p. 1588-1592. **Elsevier** (Scopus 1.24). **DOI:** 10.1016/j.matpr.2020.04.845.
10. Sapra G, M. Sharma and R. Vig. *Active vibration control of a beam instrumented with MWCNT/epoxy nanocomposite sensor and PZT-5H actuator, robust to variations in temperature*. Microsystem Technologies, 2018, **24** (3): p. 1683-1694. **Springer** (SCI Indexed, Impact Factor 1.581). **DOI:**10.1007/s00542-017-3551-1.

11. Sapra G, M. Sharma, R. Vig and S. Sharma. *Multiwalled Carbon Nanotube Film Composite for Active Vibration Control of Cantilevered Beam*. IEEE Sensor Journal, 2019, **7**(1):p.2466-2473. **IEEE** (SCI Indexed, Impact Factor: 3.076). **DOI:** 10.1109/JSEN.2018.2889651.
12. Sapra G, M. Sharma, R. Vig and S. Sharma. *Temperature Robust Active Vibration Controller Using MWCNT/Epoxy Strain Sensor and PZT-5H Actuator*. Journal of Electronic Materials, 2019, **48**(6):p.3991-3999. **Springer** (SCI Indexed, Impact Factor: 1.566). **DOI:** 10.1007/s11664-019-07159-w.
13. Sapra G., P. Kumar, N. Kumar R. Vig and M. Sharma. *Effect of processing conditions on the electrical resistance of MWCNT/epoxy nanocomposite based strain sensors*. Journal of Materials Science: Materials in Electronics, 2018, **29** (22): p.19264-19277. **Springer** (SCI Indexed, Impact Factor: 2.324). **DOI:** 10.1007/s10854-018-0053-6.
14. Kaur A, A. Gupta, G. Sapra et al. *Non-destructive evaluation and development of a new wire rope tester using parallelly magnetized NdFeB magnet segments*, Journal of Nondestructive Evaluation, 2018, **37**(3):p.61, **Springer** (SCI indexed, Impact Factor: 2.139). **DOI:** 10.1007/s10921-018-0516-y.
15. Sapra G and P. Sharma *Design and analysis of MEMS MWCNT/epoxy strain sensor using COMSOL*. Pramana Journal of Physics, Indian Academy of Sciences, 2017, **89**(10):p.1-5. **Springer** (SCI indexed, Impact Factor: 0.71). **DOI:** 10.1007/s12043-017-1398-8.
16. Sapra G., R. Vig and M. Sharma *Simulation and Analysis of Strain Sensitivity of CNT based Strain Sensors*, International Journal of Nanoscience, 2016, **15** (5), **World Scientific** (Scopus Indexed, Impact Factor 0.21). **DOI:** 10.1142/S0219581X1660005X.
17. Singla N., V. Pahwa and G. Sapra *Mitigation of SSR with STATCOM using Subsynchronous Damping Controller on Series-Compensated Transmission line* Indian Journal of Science and Technology, 2016, **9**(45), **Indian Society for Education and Environment** (Web of Science indexed, Impact Factor 0.21). **DOI:** 10.17485/ijst/2016/v9i45/101068.
18. Sapra G. *Effect of Band Energy Gap on Carbon Nanotube Strain Sensors*, International Journal of Applied Engineering Research, 2015, **10**(44), (Scopus indexed).
19. Sapra G. *Piezoresistivity of Carbon Nanotubes Strain Sensors*, ARPN Journal of Engineering and Applied Sciences, 2015, 10(12) **Asian Research Publishing Network** (Scopus indexed).
20. Sapra G. *Simulation and Analysis of CNTFET based Inverter*, ARPN Journal of Engineering and Applied Sciences, 2015, 10(12) **Asian Research Publishing Network** (Scopus indexed).
21. Sapra G. and P. Sharma *Mapping vulnerability along kalka-Shimla Highway: A case study based on fuzzy logic technique*, Journal of National Cartographic Association, 2011, **XXXI**, pp. 313-317, ISSN: 0972-8392.

### List of Publications in Conference (Selected)

1. Sharma P. and G. Sapra *Microcontroller based snow depth sensor for measuring depth of snow avalanche*, In proceedings of National Conference on Computational Instrumentation (NCCI-2010), CSIO, Chandigarh, 19-20<sup>th</sup> March 2010.
2. Sapra G. and P. Sharma *Gene prediction using digital filter*, In proceedings of National Conference on Computational Instrumentation (NCCI-2010), CSIO, Chandigarh, 19-20<sup>th</sup> March 2010.
3. Sharma P., I.Kaur and G. Sapra *Nanomaterials in Communication Sector: A Mini Review*, In Proceedings of Elsevier International conference on Computing Sciences (ICCS) WILKES100, ISBN. 978-93-5107-172-3, pp. 195-206, 15-16<sup>th</sup> November 2013.
4. Sapra G. *Graphene Strain Sensors*, In Proceedings of 4<sup>th</sup> International Conference on Advance Trends in Engineering, Technology and Research (ICATETR), ISBN. 978-81-930823-0-0, pp. 209-212, 19-20<sup>th</sup> June, 2015.
5. Sapra G. *Effect of doing on graphene transistors*, In Proceedings of 4<sup>th</sup> International Conference on Advance Trends in Engineering, Technology and Research (ICATETR), ISBN. 978-81-930823-0-0, pp. 201-203, 19-20<sup>th</sup> June, 2015.
6. Sapra G. *Graphene Electronics*, In proceedings of 9<sup>th</sup> Chandigarh Science Congress CHASCON, 25- 27<sup>th</sup> Feb, 2015.
7. Kaur I., P. Sharma, G. Sapra and S. Singh *Tuning Bandgap of Graphene Sheet by Designing Beryllium Atom*. International Conference on Computational Condensed Matter Physics and Materials Science (IWCCMP-2015), ABV-IIIITM Gwalior, 18- 22<sup>nd</sup> October 2015.
8. Sapra G. and P.Sharma *Design and Analysis of MEMS MWCNT/Epoxy Strain Sensor Using ANSYS*, 2<sup>nd</sup> IEEE International Conference on Recent Advances in Engineering and Computational Sciences, Panjab University, DEC 21-22, 2015.
9. Sapra G., J. Singh, P. Kumar, M. Sharma and R.Vig. *Effect of carbon nanotube content on mechanical properties of MWCNT/epoxy based nanocomposite*. Second World Congress on Microscopy: Instrumentation, Techniques and Applications in Life Sciences and Materials Sciences (WCM 2018), Mahatma Gandhi University, Kottayam, Kerala, 10<sup>th</sup> -12<sup>th</sup> August 2018.
10. Mainra J, Kaur A and Sapra G. *Optimization of Triboelectric Nanogenerator for Small Power Electronics*. In E3S Web of Conferences, vol. 184, p. 01046. EDP Sciences, 2020.

## Books and Chapters:

1. Sharma P and Sapra G. *Analog Electronics* book Kalyani Publishers, New Delhi
2. Kant S. and G. Sapra *Landslide Hazard Evaluation and Mapping using Fuzzy Logic in GIS Environment: A Case Study of Kalka-Shimla Highway* as a chapter in book 'Environmental Changes and Geomorphic Hazards' (eds.) Surendra Singh, Leszak Starkel Hiambok Jones Syiemlieh, ISBN. 978-81-89640-46-0, Bookwell Publishers, New Delhi, 2008.
3. Kaur A., A. Gupta, H. Aggarwal, M.Sharma, S. Sharma, N. Aggarwal, G. Sapra and J. K. Goswamy. *Selection of a Hall Sensor for Usage in a Wire Rope Tester* as a chapter in *Computational Signal Processing and Analysis* Asoke K Nandi, N Sujatha, R Menaka and John Sahaya Rani Alex, ISBN. 978-981-10-8353-2, Springer Nature Singapore.



### **International Collaborations:**

1. Reviewer for IEEE Access Journal.
2. Reviewer for Mechanic Based Design of Structure and Machines.
3. International Technical Program Committee Member for International Workshop on Materials Science and Mechanical Engineering (IWMSME 2017), Oct 27<sup>th</sup> to 29<sup>th</sup> , Kunming, Yunnan, China.
4. Invited for talk on “Fourth International Conference on Catalysis and Chemical Engineering (CCE-2020) during Februray 24-26, 2020, Los Angeles, CA, USA.

### **Other Activities:**

1. Member of core committee, Centre for Industry Institute Partnership Programme, PU
2. Faculty in- charge for NIRF 2020 and 2021- Engineering Discipline, PU.
3. Faculty member of mini IQAC cell, UIET, PU, 2021-2022.
4. Co-chair for International Conference on Multidisciplinary Aspects of Materials in Engineering 2021 (IC-MAME 2021), 8th -9th October 2021, UIET, PU.
5. Appointed as Brand Ambassador, Bentham Science, 2020.
6. Invited as Speaker at “Fourth International Conference on Catalysis and Chemical Engineering (CCE-2020) during Februray 24-26, 2020, Los Angeles, CA, USA.
7. Appointed as MHRD IIC innovation ambassador, Panjab University, Jan 2020.
8. Advisory member of Central placement cell, Panjab University Chandigarh for 2011-2014.
9. Training placement coordinator for Electrical and Electronics Engineering, UIET for 2010-Till Date.
10. Representative of team constituted by Vice Chancellor, PU to visit College of Engineering, Pune for a study tour in 2013.
11. Teacher In-charge for 4 weeks summer training program on “VLSI and Embedded System Design ” for 2011 and 2012
12. Organised HR meet in Collaboration with NASSCOM in UIET, 30<sup>th</sup> Jan, 2013.
13. Organising coordinator for five day Infosys Deep dive faculty enablement program for 18 Infosys partner institute in March 2013
14. Organising coordinator for Faculty Development Program in collaboration with Infosys on “Achieving excellence in technical Education” in June 2013.
15. Teacher In-charge for UIET Logo Design Team.
16. UIET SPOC for Infosys Campus Connect program
17. Teacher In-charge for Nuvoton Academic Program, Taiwan.
18. Teacher In-charge for establishing NuMicro ARM Cortex-M0 Microcontroller Lab in collaboration with Nuvoton Technology Coorporation, April, 2013.
19. UIET Committee member for establishing Robotic Lab in collaboration with IIT, Mumbai.
20. Organising coordinator for Faculty Development Program in collaboration with Omron Automation on “One Week Faculty Development Program on PLC and Automation” from 22<sup>nd</sup> to 27<sup>th</sup> August 2016.
21. Organising coordinator for three days Student Workshop on “Automation Technologies by Siemens” on under twinning arrangement of TEQIP III project at Government College of Engineering and Technology, Jammu from 28<sup>th</sup> to 30<sup>th</sup> May 2018.
22. Organising coordinator for three days Student Workshop on “PLC and Automation Technologies” on under twinning arrangement of TEQIP III project at Government College of Engineering and Technology, Jammu from 20<sup>th</sup> to 22<sup>nd</sup> Nov 2019.

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