



# Prof Manisha V Makwana



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## ABOUT ME



Ph.D. in nanotechnology, having experience in the simulation and atomistic finite element analysis. Expertise in nano biosensors simulation for various type of biological objects. Additionally, knowledge in designing and modelling of setup, design of experiments and statistics for graphene based composite for space application. An enthusiastic, adaptive and expeditious person with a broad and acute interest in the area of nano science and nano technology. Proven ability to manage challenging research work while working in complex and highly-demanding environments.

## Professional Preparation



<b>Doctor of Philosophy, Nanotechnology</b> (CVM University, Vidyangar, India)	<b>January 2021 – pursuing</b>
<b>Master of Engineering, Machine Design</b> (Gujarat Technological University)	<b>June 2004</b>
<b>Bachelor of Engineering, Mechanical Engineering</b> (Gujarat University)	<b>June 2001</b>

## Professional Experience



**June 2013 to Continue**

### Assistant Professor

A D Patel Institute of Technology, New Vallabh Vidyanagar, Anand, Gujarat, India

**July 2009 – June 30, 2013**

### Assistant Professor

M B Patel Institute of Technology, New Vallabh Vidyanagar, Anand, Gujarat, India

**2007 to June 30, 2009**

### Assistant Professor

A D Patel Institute of Technology, New Vallabh Vidyanagar, Anand, Gujarat, India January

**June 2006 – January 2007**

### Adhoc Lecturer

A D Patel Institute of Technology, New Vallabh Vidyanagar, Anand, Gujarat, India

## Projects



### Ph.D. Thesis Project

Title: Atomistic Modeling and Molecular Dynamic Analysis of Graphene for Nano Sensors

Duration: January 2021 to May 2024 (Part time Scholar)(Pursuing)

- My work broadly falls in the area of nanomaterials simulation for nano sensors. Research work mainly focused on mass sensors and biological objects sensors.

## Patents



No	Name of Inventors	Title	Application No	Awarding Agency	Date of award/filing	Status
1	Mrs. Manisha Makwana, Dr. Ankit Dilipkumar Oza, Dr. Ashish Kumar Shukla, Dr. Kiran Suresh Bhole, Dr. Sachin Manohar Shinde, Mr. Gaurav Kumar Pandey, Mr. Ramendra Singh Niranjan, Dr. Utsav Dipak Gadhia, Mr. Ishwer Shivakoti, Dr. Shubhangi Liladhar Vaikole, Ms. Maitriben Harshadbhai Dave, Dr. Ajaykumar Mahendrabhai Patel, Mr. Ranit Karmakar, Mrs. Srushti Bhatt	A System For Developing A Novel 3d Printed Bionic Prosthetic Leg	202022103187.8	German Utility Patent	04/06/2022	Granted & Published

## Publication



### Journal

- 1) **Manisha Makwana**, Ajay M Patel, Ankit D. Oza, Manoj Kumar, Abhishek Kumar, Abhishek Joshi, "Influence on Dynamic Behaviour of Single Layer Graphene by Stone Wales and Pinhole Defects" **Advances in Materials and Processing Technologies**, Taylor & Francis, 2023, (ESCI, Q2, IF 2.37)
- 2) **Manisha Makwana**, Ajay M. Patel , Ankit D. Oza, Chander Prakash, Lovi Raj Gupta, Nikolai Ivanovich Vatin and Saurav Dixit, "The Effect of Mass on the Dynamic Characteristics of Single and Double Layered Graphene based Nano Resonators" **Materials**, MDPI, 2022 (SCIE, Q1, IF 3.748)  
DOI: <https://doi.org/10.3390/ma15165551>
- 3) **Makwana, M. V.**, & Patel, A. M. (2023). Molecular dynamic analysis of pristine single layered graphene for mass sensor. **Materials Today: Proceedings**, 72, 729-735. (Elsevier Scopus IF-1.46 ) 2022.  
DOI:<https://doi.org/10.1016/j.matpr.2022.08.496>
- 4) **Makwana, M. V.**, & Patel, A. M. (2022). Recent Applications and Synthesis Techniques of Graphene. **Micro and Nanosystems**, 14(4), 287-303. (SCOPUS: IF 0.253) DOI:<https://doi.org/10.2174/1876402914666220318111303>
- 5) **Makwana, M. V.**, & Patel, A. M. (2022). Multiwall Carbon Nanotubes: A Review on Synthesis and Applications. **Nanoscience & Nanotechnology-Asia**, 12(3), 3-15. (SCOPUS: IF 0.75)  
DOI:<https://doi.org/10.2174/2210681211666211013112929>
- 6) Usha Pawar, Kiran Bhole, Mansing Rathod, Ankit D. Oza, Dipali Bhole, **Manisha Makwana**, "Design Optimization of Circular Vessel using Computational Fluid Dynamics for the Effective Heat Storage" International Journal on Interactive

Design and Manufacturing (**IJIDeM**), Springer 2022 (ESCI, Q2, IF--)

DOI: <https://doi.org/10.1007/s12008-022-01177-5>

- 7) Priyank Kansara; Apurva Indrodia; Mohit Diwan; Jaimin Raval; Navneet Yadav; Ankit D. Oza; Manoj Kumar; Sachin Shinde; Anjum Parvez; **Manisha Makwana**, "Optimization of Gate Valve Structure based on Strength Parameters Using Finite Element Analysis", International Journal on Interactive Design and Manufacturing (**IJIDeM**), Springer, 2022 (ESCI, Q2, IF--)  
DOI: <https://doi.org/10.1007/s12008-022-01052-3>
- 8) Rahul Vaishya, Vivek Sharma, Anurag Gupta, Japneet Pathania, Ankit Oza, Anil Kumar Dixit, Kiran S. Bhole, **Manisha Makwana**, Amisha Patel, "Finite Element Modeling of Quartz Material for Analyzing Material Removal Rate in ECDM Process" International Journal on Interactive Design and Manufacturing (**IJIDeM**), Springer, 2022 (ESCI, Q2, IF--)  
DOI: <https://doi.org/10.1007/s12008-022-01037-2>
- 9) **Manisha Makwana**, Ajay M.Patel, Ankit D. Oza, "Identification of Microbes Using Single Layer Graphene based nano Biosensors", Submitted in Nanotechnology, IOP Science, (Current Status – Under Review) 2023 (SCIE, Q1, IF – 3.953)
- 10) **Manisha Makwana**, Ajay M.Patel, "Nano Resonator Vibrational Behaviour Analysis of Single- and Double-Layer Graphene with Atomic vacancy and Pinhole Defects" **Journal of molecular modelling**, Springer nature (Current Status – Under Review) 2023 (SCIE, Q2, IF – 2.17)

### Conference

- 1) **Makwana Manisha**, Patel Ajay M, Oza Ankit D, Ashish Goyal, International Conference on Industry 4.0 - Nascent Technologies and Sustainability for 'Make in India' Initiative (SPICON 2022)" on 22-23 December 2022, Organized by Department of Mechanical Engineering, Sardar Patel Collge of Engineering, Mumbai, India Paper title: "Influence of Stone Wales and divacancy Defects on the Dynamic Behaviour of Single Layer Graphene" (Accepted for **AIP Proceedings-Scopus**)
- 2) **Makwana Manisha, Patel Ajay M** "1<sup>ST</sup> International Conference on Recent Advances in Mechanical Engineering (ICRAM 2022)" on 25-27 August 2022, Organized by Department of Mechanical Engineering, **IIT-Jodhpur** Rajasthan, India. Paper title: "Influence on Dynamic Behaviour of Single Layer Graphene by Stone Wales and Atomic Vacancy Defects." (Accepted for **book chapter- Scopus**)
- 3) Ankit D. Oza, Manoj Kumar, Mit C. Patel, B. Suresh Kumar, Ashish Goyal, **Manisha Makwana**, International Conference on Industry 4.0 - Nascent Technologies and Sustainability for 'Make in India' Initiative (SPICON 2022)" on 22-23 December 2022, Organized by Department of Mechanical Engineering, Sardar Patel Collge of Engineering, Mumbai, India Paper title: "Machining Through Electric Discharge Machining (EDM) Process: A Mini Review" (Accepted for **AIP Proceedings-Scopus**)
- 4) Ankit D. Oza, Manoj Kumar, Mit C. Patel, B. Suresh Kumar, Ashish Goyal, **Manisha Makwana**, International Conference on Industry 4.0 - Nascent Technologies and Sustainability for 'Make in India' Initiative (SPICON 2022)" on 22-23 December 2022, Organized by Department of Mechanical Engineering, Sardar Patel Collge of Engineering, Mumbai, India Paper title: "Machining Through Electric Discharge Machining (EDM) Process: A Mini Review" (Accepted for **AIP Proceedings-Scopus**)
- 5) Ashish Goyal, Nipun Gautam, **Ankit D. Oza**, Amarish Badgujar and **Manisha Makwana**, "Future Learning Aspects of Mechanical Engineering is an international Peer-reviewed academic conference (FLAME 2022) ", on 3-5 August, 2022,

Organized by Department of Mechanical Engineering, Amity University, Noida, U.P., India. Paper title: "Study of various optimization techniques by Laser beam and Abrasive jet machining processes" (Accepted for **Materials Today Proceedings, (Elsevier) - Scopus**)

### During Professional Career

- 1) Chhazed, A. J., **Makwana, M. V.**, & Chavda, N. K. (2019). Microbial fuel cell functioning, developments and applications-a review. *Int J Sci Res*, 8(12), 3620-3633. **(UGC Approved journal)**
- 2) **Makwana, M. V.**, & Shah, A. (2014). Design and manufacture of movable headlight system in automobile. *International Journal of Innovative and Emerging Research in Engineering*, 1(2), 12-16. **(UGC Approved journal)**
- 3) Chhazed, Abhishek J. **Makwana, M. V** et al. "Utilization of PET Waste in Plastic Bricks, Flexible Pavement & as Alternative Constructional Material-A review." (2019). *International Journal of Applied Engineering Research*, vol 14-3, ISSN 616-620 **(UGC Approved journal)**
- 4) **Makwana Manisha**, Ravi Rathod "Hydraulically Controlled Tracking System for Solar Panel tional Material-A review." (2019). *International Journal for Research in Engineering Application & Management (IJREAM)ISSN : 2454-9150 Vol-06, Issue-05, Aug 2020(UGC Approved journal)*
- 5) Jvalant Trivedi, Shradhdha Trivedi, Ravi Rathod, **Manisha Makwana**,Tejas Prajapati, "Vertical Axis Wind Turbines: A Review of the state-of-the art" *Compliance Engineering Journal*, ISSN NO: 0898-3577**(UGC Approved journal)**

### Conference

- 1) **Makwana Manisha**, Mehul B Patel "Value analysis of double girder EOT crane" Second International Conference on Research and Innovations in Science, Engineering & Technology ICRASET-2020.
- 2) **Makwana Manisha**, Mehul B Patel, "Analysis of run out problem on agitator assembly of glass lined reactor".2nd International Conference on "Women in Science & Technology: June 28-30, 2018Creating Sustainable Career" June 28-30, 2018 organized by Birla Vishvakarma Mahavidyalaya (An Autonomous Institution).
- 3) **Makwana Manisha**, Mehul B Patel, "Design and development of strain gauge Dynamometer." 2nd International Conference on "Women in Science & Technology: Creating Sustainable Career" June 28-30, 2018 organized by Birla Vishvakarma Mahavidyalaya (An Autonomous Institution).

**Professional  
Services**



- 1) Invited Reviewer of Sardar Patel International Conference (SPICON-2022), Date: 22-23 December 2022.
- 2) A reviewer of taylor and francis journal, Journal on Interactive Design and Manufacturing (IJIDeM), Springer.

## Expert Lecture



- 1) An expert talk on **“Importance of Indian Ethos and Values in Modern Life style”** delivered at AICTE - ATAL FDP program on “Green Technology – Innovations & Challenges” during 12th to 23rd DEC 2022 at A D Patel Institute of Technology.
- 2) An expert talk on **“New Avenue of Entrepreneurship”** was delivered at Institute of Advanced Research, The University of Innovation Gandhinagar on 06/10/2022.
- 3) An expert talk on **“Entrepreneurship in current area”** was conducted at R. C. Technical Institute Sola Ahmedabad on 19/01/2022.
- 4) An expert talk on **“Entrepreneurship Development”** was conducted Kilachand Devchand Polytechnic, Patan on 22/02/2022.
- 5) An expert talk on **“Entrepreneurship scope in current Scenario”** was conducted at GMB Polytechnic Rajula on 25/02/2022.
- 6) An expert talk on **“basics of Entrepreneurship”** was conducted at B & B Polytechnique Institute Vidyanagar on 15/07/2022.
- 7) An expert talk on **“Women rights in India”** was conducted at M B Institute Tehnology on 09/04/2022.
- 8) An expert talk on **“Personality development”** was conducted at Sardar Patel Commerce college on 05/03/2022.
- 9) An expert talk on **“Entrepreneurship scope in current Scenario”** was conducted at LE College of Diploma, Morbi on 13/09/2021.

## Event Organize



- 1) Organized one day workshop on **“Entrepreneurship in current Era”** under the Entrepreneurship development cell, on 7<sup>th</sup> May 2022 at A D Patel Institute of Technology, New V V Nagar, Anand.
- 2) Organized international webinar on **“Enhancing Eloquence”** under the Entrepreneurship development cell, on 15<sup>th</sup> May 2021 at A D Patel Institute of Technology, New V V Nagar, Anand.
- 3) Organized seminar on **“Vedas in Rocket Engineering”** at A D Patel institute of technology on 5<sup>th</sup> August 2022.
- 4) Organized seminar on **“Entrepreneurship as a career”** at A D Patel institute of technology on 26<sup>th</sup> August 2022.
- 5) Organized one day workshop on **“Women Entrepreneurship oppurtunities in India”** at A D Patel institute of technology on 30<sup>th</sup> January 2021.
- 6) Organized webinar on **“Start and Grow”** under Entrepreneurship Development Cell on 7<sup>th</sup> Sep 2021 at A D Patel Institute of Technology.
- 7) Organized a webinar on **“Entrepreneurship Opportunities in Current Era”** on 28<sup>th</sup> Dec 2020 at A D Patel Institute of Technology.
- 8) Organized a webinar on **“The role of Youth in Technology”** on 15<sup>th</sup> October 2020 at A D Patel Institute of Technology.
- 9) Organized a webinar on **“Unity in diversity”** on 31<sup>st</sup> October 2020 at A D Patel Institute of Technology.
- 10) Organized a webinar on **“Environment awareness”** on 2<sup>nd</sup> July 2021 at A D Patel Institute of Technology.

## Outreach Activity



- 1) Attended one week Faculty Development Programme on "**Modern Manufacturing in Industry 4.0 (MMI-2023)**" organized by the Department of Mechanical Engineering, National Institute of Technology Delhi, India, held during February 07th-12th, 2023.
- 2) Attended one week FDP on "**Advanced Characterization Techniques (ACT-2022)**" organized by Department of Chemistry, UIS, Chandigarh University, Mohali, Punjab from 25th July 2022 to 30th July 2022
- 3) Attended Online Elementary FDP on "**Recent Advances in Composites and Nano Materials**" from 13/12/2021 to 17/12/2021 at Dr Ambedkar Institute of Technology.
- 4) Attended FDP on "**Current Trend in Engineering Nano-Materials, Characterizations & Their Applications** " from 06/12/2021 to 10/12/2021 at Indira Gandhi National Tribal University.
- 5) Attended Online Elementary FDP on "**Innovations in Manufacturing of Novel Materials and Composites**" from 23/11/2021 to 27/11/2021 at Christian College of Engineering and Technology.
- 6) Attended FDP on "**Modeling Approach in Micro - Machining Processes**" 26th-30th October, 2020 Organized by Department of Mechanical Engineering, School of Technology, Pandit Deendayal Petroleum University, Gandhinagar.
- 7) Attended Online FDP on "**Green Technology & Sustainability Engineering**" from 2020-9-21 to 2020-9-25 at A D Patel Institute of Technology.
- 8) Attended Online STTP on "**Applied Computational Fluid Dynamics for Renewable Energy and Hydraulic Machines Sector**" from 01st to 05th February, 2021 at A D Patel Institute of Technology.
- 9) Attended Online STTP on "**Applied Computational Fluid Dynamics for Engineers**" from 14th to 18th December, 2020 at A D Patel Institute of Technology.
- 10) Attended Online STTP on "**Applied Computational Fluid Dynamics for Automotive space and defense sector**" from 01<sup>st</sup> to 05<sup>th</sup> March, 2021 at A D Pate Institute of Technology.

## Social Activities

- Organized many blood donation camps and thalassemia awareness and testing camps, Covid 19 vaccination camps, tree plantations events women health and hygiene events and human values expert talks.
- Serving as NSS Program Officer at ADIT.

## Professional Affiliations

- Lifetime member of Indian Society for Technical Education.

## Computer Proficiency

- Ansys
- Origin
- Microsoft
- AutoCAD
- Fluidsim
- MATLAB

## Languages

Gujarati                      Hindi                      English

## Interests & Skills

- Writing and presenting reports
- Research
- Educational Development
- Exposure of new technologies
- Field trip
- Lab development
- Mentoring
- Industrial Interaction

## Personal Details

Father's Name	Late. Ramanbhai Rathod	Marital status	Married
Birthdate	16 <sup>th</sup> July 1980	Nationality	Indian
Gender	Female	Blood Group	O +ve

## My Address

B-2 Shilpganesh Tenament  
Opp: Aksharfarm  
Gopi V V Nagar Road  
Anand -388001  
Gujarat, India

## References



**Dr. Vijay H Makwana**  
Electrical Engineering  
Department  
G H Patel College of  
Engineering and Technology  
Vallabh Vidyangar-388001  
Anand, Gujarat, India  
[vijaymakwana@gcet.ac.in](mailto:vijaymakwana@gcet.ac.in)

**Dr. Ajay M Patel**  
Mechatronics Engineering  
Department  
G H Patel College of  
Engineering and Technology  
Vallabh Vidyangar-388001  
Anand, Gujarat, India.  
[ajaympatel@gcet.ac.in](mailto:ajaympatel@gcet.ac.in)

I, Manisha V Makwana, hereby declare that the information contained herein is true and correct to the best of my knowledge and belief.

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Manisha V Makwana