

Cover Letter

Dear Sir,

I am writing to apply for the Project Assistant position within a project at CeNSE, IISc Bengaluru focusing on the development of magnetic core-shell and fabrication and testing miniaturized power inductors for future generations of power electronics. I am keenly interested in this position and shall like you to consider my candidature for the same.

The idea that materials can be altered and can be imparted superior properties enthralls me. I did my Bachelors in Mechanical Engineering because metal, alloys, heavy machines, etc. appealed to me but I didn't want to limit myself to something so core and therefore I chose to pursue my Masters in Nanotechnology since it is an interdisciplinary subject and it allowed me to step in other realms of material science. My Master's thesis topic was "*Development of novel single-source precursor of Tin for deposition of Tin Oxide film for Gas Sensing applications through Microwave-assisted solvothermal method.*" For this, I worked my way up from core chemistry right up to the details of material depositions and characterization, although the initial plan was to go up to device fabrication unfortunately that's when Covid-19 struck. I could only go up to the film characterization. Through this work, I got rich experience with the following characterization tools and I can interpret their results with ease. - NMR, ESI-MS, TGA, ATR-FTIR, XRD, FESEM, EDX, BET, Conductivity measurements.

For my experimental work I worked at DMSRDE, Kanpur which is a laboratory of the *Defence Research and Development Organisation (DRDO), India*. There I was thoroughly trained in material synthesis.

In November 2021 I joined CSIR-Central Scientific Instruments Organisation (CSIR-CSIO), Chandigarh as a Project Associate I under Dr. Babankumar S. Bansod in a CSIR funded project which aims to set up a real-time water monitoring system where my role was to focus on Nitrate sensing through UV absorption technique. Here I learned a lot about data analysis, data calibration, validation, PLS models and their implementation, and how to use them for device design and I also learned to bridge the gap between lab research and real-world application. I am currently enrolled there.

So, my academic and work experience may look as if it is all over the place but it has been an exciting journey till now. I am searching for positions where I can go back to my Nanotechnology roots as I am more interested in the fabrication, characterization, and testing of materials for advanced applications. For my future, I plan to apply and pursue Ph.D. in this field as well. And yes, since I am a student of Alumni of CeNSE, Dr. Piyush Jaiswal, this opportunity feels special.

Looking forward to your kind consideration

Thank You

Yours sincerely,
Priyanshu Sharma

Priyanshu Sharma | Nanotechnology Postgraduate

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Professional Profile

‘An analytical Nanotechnology Postgraduate, passionate for career in Research & Development with a strong academic background in precursor synthesis, nanomaterial synthesis, CVD/PVD and characterization.’

Enjoys synthesizing and investigating nanomaterials. Have experience with multiple material characterization techniques such as UV-Vis Spectrometry, NMR, ESI-MS, TGA, FTIR, XRD, FESEM, BET, Solar simulator, and Electrical characterization. Have hands-on experience with precursor synthesis and film deposition with PVD. Reliable team member with an amicable personality and positive attitude. Supportive nature with cool, calm, and careful mindset along with good professional composure. Committed to continuous learning and professional development, with a genuine interest in finding all the magic nanomaterial can do.

Core Skills

- Research and Analysis
- Laboratory Techniques
- Toxic material handling
- Chemistry
- Material Characterization
- PVD
- Thin films
- 2D materials
- Clean room (Class 10,000)
- Problem solving
- Semiconductors
- Sensors, Solar energy, Energy storage

Education and Qualifications

M.Tech

Nanotechnology

Centre for Advanced Studies, AKTU, (2021)

Thesis: “Development of Novel Single Source Precursor of Tin Oxide for Deposition of Tin Oxide Films through Microwave Assisted Solvothermal Method for Various Applications”

Medium of education – English

CGPA – 8.93/10

B.Tech

Mechanical Engineering

Babasaheb Bhimrao Ambedkar University, (2018)

Project: Fabrication and Assembly of Clay based Evaporative Air Cooler

Medium of Education – English

CGPA- 7.02/10

Class	Board	School	Year	Subjects	% Marks
12th	Council for the Indian School Certificate Examinations	Stella Maris Inter College	2014	Phy, Chem, Maths, Computer Science	77.6
10th	Council for the Indian School Certificate Examinations	Stella Maris Inter College	2012	Maths, Science, Hist, Civ, Geo, Comp, EVS	80.86

Training and Experience

- **November 2021 – March 2022**

Project Associate I - Council of Scientific and Industrial Research–Central Scientific Instruments Organisation (CSIR–CSIO)

Outline: Working on CSIR funded project to research and develop a real time water monitoring system based on optical method.

- **July 2019-March 2020**

Research Intern - Defence Materials and Stores Research and Development Establishment

Outline: Prepared organometallic precursor by wet chemical synthesis and then use to deposit metal oxide films followed by its various characterizations.

- **May 2017-June 2017**

Trainee - Rolling Stock Workshop Charbagh, Lucknow

Outline: Was assigned 'Pump Section in Diesel Loco' where I got hands on experience about the maintenance of different types of pumps that are used in diesel locomotives.

- **June 2016-July 2016**

Summer Trainee - Scooter India Limited, Lucknow

Outline: Was assigned to prepare a project on manufacturing of 'Front Axle Shaft'.

Certificates and Achievements

- **October 2019** – Completed Elsevier Research Academy course on 'Ethics' covering modules such as Authorship, Plagiarism, content ownership, etc.
- **September 2019** - Anton Paar - Short Course on Surface Area and Porous Material Characterization
- **April 2019** - 2nd Prize in Innovative Idea Contest 2019, CAS-AKTU - Received 2nd position for poster presentation on '*Interwoven STF Filled tubes in Bullet-proof vests*'
- **March 2019** - Anton Paar - Short Course on Applied Rheology
- **October 2018** - Attended 5 day ANSYS Workshop, ANSYS HGSS, ANSYS Maxwell, ANSYS Mechanical & ANSYS CFD Simulation.

Additional Information

IT Skills

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|------------------------|---|-------------------------------------|
| ▪ MS Office - Advanced | ▪ ANSYS - Basic | ▪ Adobe Photoshop – Intermediate |
| ▪ Python - Basic | ▪ Solidworks - Intermediate | ▪ Adobe Premiere Pro – Intermediate |
| ▪ MATLAB - Basic | ▪ The Unscrambler (Data analysis and modelling) | ▪ OS – MS Win 10, Mac |

Publication

Title -Development of novel single-source precursor of tin for deposition of tin oxide thin films for various applications

DOI - <https://doi.org/10.1088/1757-899X/1136/1/012054>

Languages

Hindi (Mother tongue) – Read, write and speak

English – Read, write and speak fluently.