



रसायनिक अभियांत्रिकी विभाग  
मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान, इलाहाबाद  
प्रयागराज-211004 (भारत)  
Chemical Engineering Department  
Motilal Nehru National Institute of Technology Allahabad  
Prayagraj-211004 (India)

Dated:07/04/2025

Advertisement No- 31/R&C/2025-26

**Advertisement for the Post of Junior Research Fellow (On Contract)**  
**Walk In Interview**

Applications are invited from Indian nationals for the post of **Junior Research Fellow (JRF) (on contract)** in research project entitled "**Design of novel heterogeneous catalysts for CO<sub>2</sub> capture from flue gas based on density functional theory computations**" Sanction order No. EEQ/2023/000011 sponsored by SERB, DST, Gov. of India.

The duly completed application on prescribed format along with scanned copies of supporting documents must reach via email to: [manju@mnnit.ac.in](mailto:manju@mnnit.ac.in) (email address of **Dr. Manju Verma, ChED**) with the subject of the email as "Application for JRF (on contract) in SERB-EEQ Project" on or before **April 21, 2025, 5.00 PM (IST)**.

**Description and Objectives of the Project:** The project is intended to learn from biological systems and develop chemical analogues that are suitable for applications in an industrial set-up for CO<sub>2</sub> capture applications. Various aspects of the proposed study can be summarized as (a) Design and simulate the molecular structures of metal cluster supported metal oxide surfaces, (b) Check the stability of designed systems, (c) Design and simulate all the intermediates and transition states existing in the reaction, (d) Explore the possibilities of designed catalysts on the basis of potential energy surface developed for the CO<sub>2</sub> hydration reaction, (e) Characterization of molecular structures using IR spectra, NMR spectra, HOMO-LUMO, Band gap, atomic charge analysis, electron density difference analysis etc.

The position is purely temporary and will be governed by the funding agency rules & service conditions of Office of the Dean (Research & Consultancy), Motilal Nehru National Institute of Technology, Allahabad, Prayagraj-211004 (U.P.) India.

**Number of Position** : 1 (One)

**Essential Qualifications** : M.E./M. Tech (or equivalent) in chemical engineering or allied relevant branches **or** B.E./B. Tech (or equivalent) in chemical engineering or allied relevant branches **or** M.E./M.Tech. in Environmental science and engineering/ Environmental engineering/ Biochemical engineering/ Biotechnology **or** B.E./B. Tech in Civil engineering with interest in computational chemistry **or** M.Sc. (or equivalent) in Chemistry, Physical Chemistry, Physics etc. selected through any one of the following:

- GATE/NET
- National Level examinations conducted by central government departments and their agencies and institutions such as DST, DBT, DAE, DOS, DRDO, MOE, ICAR, ICMR, IIT, IISc, IISER, NISER etc. qualified candidates along with research experience in catalysis, computational chemistry, computational material science, computational catalysis.

**Fellowship** : **Rs. 31,000.00** per month (Consolidated) + HRA (16%)  
**Other Benefits** : Accommodation may be available as per the availability and the Institute norms. Candidate selected for the JRF may **register for Ph.D.** if eligibility conditions as set by institute (CPI 6.5 or 60% marks in M. Tech. (or equivalent) and CPI 8.0 or 75% marks in M.Sc./B.E./B.Tech (or equivalent)) is met by the candidate. Facility of yearly leave, medical benefits etc. may be available as per applicable rules for the project staff.

**Age Limit** : As per SERB guideline.

Manju  
7.4.2025

**Tenure of Appointment :** Appointment will be made on contract basis for a period of one year initially, which can be extended depending on the performance evaluation on yearly basis till the end of project.

**Note:**

1. The applicant will be responsible for the authenticity of information, other documents and photographs submitted.
2. The Institute reserves the right to accept application at any time, and consider candidates of exceptional credentials without applications.
3. Qualification and experience may be relaxed by the Institute at any point of time for otherwise exceptional candidates.
4. Mere possessing the prescribed qualification does not ensure that the candidate would be called for Interview. The Candidates will be shortlisted on the basis of merit and need of the project.
5. Shortlisted Candidates will be informed by e-mail about the interview date. So, the candidate must provide valid e- mail IDs in their applications.
6. Shortlisted candidates have to present themselves for the interview on the interview date with updated CV and original and attested photocopies of mark sheets/ certificates in support of their academic qualifications.
7. Applicants in employment (private, government or any other organization) are required to submit a “**No Objection Certificate**” from the employer at the time of interview.
8. No TA/DA will be paid for appearing in the interview.

Name of Project Investigator (PI)  
Designation  
Department

: Dr. Manju Verma  
: Assistant Professor  
: Chemical Engineering

Manju  
7.4.2025



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Chemical Engineering Department  
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Prayagraj-211004 (India)

For office use only

Application No.....

**APPLICATION FORM**

Dated.....

Advt. No.....

**Research Project Entitled-** *Design of novel heterogeneous catalysts for CO<sub>2</sub> capture from flue gas based on density functional theory computations*

Self Attested  
recent passport  
size Photograph

**Sanction letter & Date-** EEQ/2023/000011  
**Funding Agency-** SERB, DST, Gov. of India  
**Name of P.I. -** Dr. Manju Verma  
**Name of position-** Junior Research Fellow (JRF) (on contract)  
**Department/Section-** Chemical Engineering

1.	Name of the Candidate (In Capital letter)				
2.	Sex (Male/Female)				
3.	Marital Status (Married/Unmarried)				
4.	Date of Birth				
5.	Age as on last date of application	Years      Months      Days			
6.	Father's/Husband's Name				
7.	Present Contact Address				
8.	Permanent Address				
9.	Mobile No				
10.	E-mail				
11.	Nationality				
12.	Category	Gen/SC/ST/OBC/PwD _____ (enclosed attested copy of certificate)			
13.	NET/GATE/etc.	Valid up to _____ Score/Rank _____			
14.	Educational Qualification				
	<b>Qualification</b>	<b>Subject/Discipline</b> <b>Board/Institute/Univ.</b> <b>Year</b> <b>% of marks</b> <b>Div.</b>			
	10th				
	12th				
	Graduation (B.Tech/BSc/Other)				
	Post Graduation (M.Tech/MSc/Other)				

Manju  
2.1.2025

Other					
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\*Title of U.G/P.G. Thesis: .....

15	Details of Experience in chronological order. <b>Enclose a separate sheet</b> duly authenticated under your signature, if necessary.							
Organization	Position	Salary/ Emoluments	Nature Duties	of	Nature of appointment	Period of Experience		
						Year	Month	Days
16	Research Publications (Attach list): - if any					Numbers:		
	i) Research Publications							
	ii) International/ Conference/Seminar / Symposium Proceeding							
	iii) National Conference/Seminar ./Symposium Proceeding							
17	Any other information (e.g. write-up stating the applicant's suitability for the project in ~ 300 words as a separate annexure) [Optional]							
18	Indicate whether you intend to register for higher degree* at MNNIT, Allahabad. Yes/No (Name of degree)							

**DECLARATION**

I hereby declare that all the statements made in this application are true and complete and nothing has been concealed/ distorted. I am aware that, if at any time I am found to have concealed/distorted any material information, my engagement is liable to be summarily terminated without notice.

Signature of the Applicant

Place:  
Date:

**Enclosures-** Self attested copy of documents

1. Proof of Date of Birth
2. Mark sheets & certificates of all the examination passed
3. Category Certificate, if applicable
4. NET/GATE, etc. score card
5. Experience support, if any

*Mani*  
*7.4.2025*