

# Call for Junior Research Fellow (JRF) / Ph.D. Position

## BITS Pilani – IIT Roorkee Collaborative Research Project

Applications are invited from highly motivated and meritorious candidates for the position of **Junior Research Fellow (JRF)** leading to **Ph.D. admission at BITS Pilani**, under an Institute-funded collaborative research project between **BITS Pilani** and **IIT Roorkee**.

The selected candidate will work under the joint supervision of **Prof. Mani Sankar Dasgupta**, Department of Mechanical Engineering, BITS Pilani, Pilani Campus, and **Prof. Nikhil K. Singh**, Department of Mechanical and Industrial Engineering, IIT Roorkee.

### Project Title

#### Optimizing Supersonic Nozzles for CO<sub>2</sub> Capture

### About the Project

The project focuses on the development of advanced computational methodologies for carbon dioxide capture using supersonic nozzle technology. The research involves computational fluid dynamics (CFD), multiphase flow modelling, non-equilibrium condensation, nozzle design optimization, and sustainable carbon capture technologies.

### Essential Qualifications

Applicants should possess:

- B.E./B.Tech. and/or M.E./M.Tech. in Mechanical Engineering or allied disciplines.
- A strong academic record with a demonstrated interest in fluid mechanics, thermodynamics, heat transfer, refrigeration, computational modelling, or related areas.

### Desirable Skills

Preference will be given to candidates having one or more of the following:

- Experience with **ANSYS Fluent**, **OpenFOAM**, or similar CFD software.
- Knowledge of numerical methods and mathematical modelling.
- Programming skills (e.g., MATLAB, Python, C/C++).
- Exposure to experimental research in thermal or fluid engineering.
- Good technical writing and communication skills.

### Research Environment and Opportunities

The selected candidate will become part of a vibrant collaborative research ecosystem involving BITS Pilani and IIT Roorkee. The project offers opportunities to:

- Conduct cutting-edge research in sustainable carbon capture technologies.

- Work on advanced CFD simulations, mathematical modelling, and experimental investigations.
- Collaborate with researchers from two premier institutions.
- Publish in high-impact international journals and present research at leading conferences.
- Pursue a Ph.D. at BITS Pilani, subject to satisfying the Institute's admission requirements.

The position is open to all eligible candidates and selection will be based solely on merit.

The selected candidate is expected to join **during the first week of August 2026** at the BITS Pilani, Pilani Campus (Rajasthan).

## **Fellowship**

- **Institute Fellowship:** ₹37,000 per month + 30% HRA
- **Enhanced Fellowship:** ₹40,000–₹42,000 per month after two years, subject to satisfactory research progress and performance as per Institute guidelines.
- Candidates possessing external fellowships (e.g., UGC-CSIR NET, GATE-supported fellowships, or other sponsored project support) may receive financial assistance in accordance with the respective funding agency norms.

## **Additional Support**

- **Contingency Grant:** ₹20,000 per year.
- Financial support for attending conferences, workshops, and other academic activities may be provided as per Institute and project norms.

## **Duration**

Up to **five years**, subject to satisfactory academic and research progress.

## **Application Procedure**

Interested candidates should email the following documents:

- Detailed Curriculum Vitae (CV)
- Copies of academic transcripts and degree certificates
- Brief statement of research interests (optional but encouraged)

Applications should be sent to:

**Prof. Mani Sankar Dasgupta**

Email: [dasgupta@pilani.bits-pilani.ac.in](mailto:dasgupta@pilani.bits-pilani.ac.in) CC: [nikhil.singh@me.iitr.ac.in](mailto:nikhil.singh@me.iitr.ac.in)

**Last date for receipt of applications: 20 July 2026**

Only shortlisted candidates will be contacted for an interview. The interview may be conducted in online or offline mode.