



Project Proposal for Ph.D.

Project Details (The research problem must clearly indicate the need for an interdisciplinary approach)

Project Title	Localized Air Quality Insights to Drive Targeted Policy for Urban Air
Project Summary (Minimum 500 and maximum 2000 characters)	The primary objective of this project is to generate high-resolution, chemically speciated air quality data at the neighborhood scale using the mobile Clean Air Research Laboratory (CARLab). Unlike conventional fixed-site monitoring, this project focuses on near-source sampling to accurately determine pollutant signatures and the localized impact of key emission sources such as landfills, industrial zones, traffic corridors, construction sites, and power plants. By leveraging CARLab's advanced instrumentation, the project aims to characterize emissions from different sources and refine source apportionment methods.

Ph.D. Supervisors*
(Supervisor 1 and Supervisor 2 cannot be from the same department of IITD)

Role	Name of Faculty	Academic Unit in IITD/Institute/University	Email ID (Official)
Supervisor 1*	Vikram Singh	Dept. of Chemical Engineering	vs225@iitd.ac.in
Supervisor 2	Mayank Kumar	Dept. of Mechanical Engineering	kmayank@iitd.ac.in

*Supervisor 1 must be from IIT, Delhi.
+All cells in this table are mandatory fields that need to be filled by faculty for consideration of proposal.
\$The date of superannuation of supervisors should be at least three years from the date of registration of selected candidates.

Project requirements (Student qualifications, experience required, etc)
*The candidate will be shortlisted based on common shortlisting criteria decided by ScRC (SIRe)

- Masters or Undergraduate degree (or equivalent) in: Environmental Engineering / Environmental Science Atmospheric Science / Atmospheric Chemistry/ Chemical Engineering / Mechanical Engineering/ Physics/ Earth & Climate Sciences/ Chemistry/Civil Engineering

Source of fellowship/funding and project number
(CSIR/UGC/DBT/ICMR/ICAR/NEET-PG/DST-INSPIRE/IRD/FITT Project details, if any)

Institute fellowship

Role of Faculty Members involved:

Supervisor-1	Vikram Singh will be involved in the chemical transport modelling close to the source. Fundamentals of CRE and Transport will be involved here.
Supervisor-2	Mayank Kumar will be involved in using positive matrix factorization to carry out source apportionment,

Note :-

1. Approval from the respective DRC/CRC/ScRC of your Department/Centre/School will be required for using the "Full-time Institute Assistantship (Category-wise) (FIA)" for selecting the students in SIRe.
2. Declaration:- Faculty members, please ensure that you have at least 3 years of service left before superannuation along with adequate sitting space & lab facilities for the SIRe student.
3. PI/s are also encouraged to submit joint proposals with AIIMS, NII, JNU and institutes with which IITD has an existing MoU. If the Co-PI (Supervisor 2) is from outside IITD, kindly share his/her detailed CV.
4. If a research scholar is to be considered for selection under the project fellowship, then the project should have a minimum of two-year duration remaining.
5. A candidate applying with a valid JRF/INSPIRE/any national level fellowship should have at least two-year validity from the date of joining the Ph.D. program.
6. The third supervisor's name (if required) can be added only after the formation of Student Research Committee (SRC) subject to a strong recommendation of SRC and subsequent approval from the competent authority.
7. If Institute fellowship is being sought, then DRC approval of the parent department of Supervisor 1 is required at the time of selection.