



PhD Admission Spring 2024



Department of Chemical Engineering IIT Indore, India

Announces admission to PhD Program for AY 2024-2025

Application Timeline:

Start Date: October 1, 2024

Last Date: November 3, 2024

The Department of Chemical Engineering at IIT Indore invites applications from motivated and research-oriented students for admission to its Ph.D. Program for Spring semester 2024-2025. The list of faculty members and their research areas are listed below.

S.No	Name	Research area and Google Scholar link
1	Dr. Abhilasha Maheshwari	<ul style="list-style-type: none">➤ Process Systems Engineering➤ Water Distribution Networks➤ Smart Water Infrastructure➤ Water chemistry➤ Water-energy-food Nexus➤ Net-zero carbon pathways➤ Sustainability➤ AI and ML for Environmental and Chemical Systems➤ Digital twins for Operational Excellence➤ Hybrid modeling➤ Large-scale optimization

		<ul style="list-style-type: none"> ➤ https://scholar.google.com/citations?user=deYBcfgA AAAJ&hl=en
2	Dr. Gaurav Chauhan	<ul style="list-style-type: none"> ➤ Coupling of biochemical reactions to phase equilibria of proteins in the intracellular environment ➤ Computational enzyme engineering for biofuel production ➤ Understanding the role of phase separation of associative polymers (proteins and RNA) on biochemical reactions using theory and computer simulations. ➤ https://scholar.google.com/citations?user=MdAFTW oAAAAJ&hl=en
3	Dr. Rajan Singh	<ul style="list-style-type: none"> ➤ heterogeneous catalyst ➤ Reaction kinetics and reactor design ➤ CO₂ capture and conversion ➤ Hydrogen production ➤ thermochemical water splitting ➤ https://scholar.google.com/citations?user=JFf0XsYA AAAJ&hl=en
4	Dr. R. Kailasham	<ul style="list-style-type: none"> ➤ Computational Soft Matter ➤ Polymer physics ➤ rheology ➤ active matter ➤ nonequilibrium statistical mechanics ➤ Brownian dynamics simulations ➤ stochastic thermodynamics ➤ colloidal hydrodynamics ➤ https://scholar.google.com/citations?user=PPv41igA AAAJ&hl=en

Prospective PhD Thesis Topics:

Dr. Abhilasha Maheshwari

- Integrating AI & ML approaches for Desalination Membrane Performance Efficiency Enhancement
- Optimal transition of manufacturing plants to achieve Decarbonization objectives & Net-zero carbon pathways
- Advanced Systems engineering approach for cost-efficient Industrial wastewater management targeting ZLD

Dr. Gaurav Chauhan:

- Computational Enzyme design for biofuel production
- Phase separation of proteins and RNA to achieve membraneless compartmentalization in cells

Dr. R. Kailasham:

- Linking molecular-level dissipation in soft materials to their macroscopic material properties
- Rheological markers for Disease Detection
- Design of self-propelled colloids for environmental remediation

Dr. Rajan Singh:

- Two stage catalytic conversion of waste plastic to fuels
- Hydrogen production by methane pyrolysis

Application Procedure: (for Indian Students)

- Candidates must apply ONLINE through our website (<https://academic.iiti.ac.in:8443/nregistration.jsp>). This will generate a unique application number for each applicant.
- Application Fee: Kindly refer to the main Ph.D. Advertisement of the Institute available at <http://academic.iiti.ac.in/phdadvt.php>
- In case a candidate wishes to apply in more than one department, then a separate application must be filled for each department.
- **No TA/DA will be provided to the applicants if called for written test /interview.**

- **The shortlisted candidates should arrange to send a minimum of two letters of recommendation directly to rsingh@iiti.ac.in or provide in a sealed envelope before appearing for the interview.**
- Mere fulfillment of the essential qualifications does not guarantee admission to the Ph.D. program in the Department of Chemical Engineering. The selection will be based on the overall performance, which will include written exam, interview, academic background, suitability for research in the chosen field/area, research aptitude, communication skills, etc.
- **Shortlisted candidates will have to appear in person for a written exam and personal interview on the IIT Indore campus (Tentative Date 11 November 2024). No online interviews will be conducted.**

For International Students: Kindly refer to the main Ph.D. Advertisement of the Institute available at <http://academic.iiti.ac.in/phdadvt.php>.

Detailed faculty profile can be seen from the department website (<https://chemical.iiti.ac.in/>)

Categories of Admission: Kindly refer to the main Ph.D. Advertisement of the Institute available at <http://academic.iiti.ac.in/phdadvt.php>.

Eligibility: Kindly refer to the main Ph.D. Advertisement of the Institute available at <http://academic.iiti.ac.in/phdadvt.php>.

Minimum Educational Qualifications (MEQs):

- *Masters' degree* (M.Tech./M.E./M.S.(Res.)) in Chemical Engineering, Material Science and Engineering, Mechanical Engineering, Chemical Technology (Polymer, Petroleum, Petrochemical etc.), Engineering Sciences, Energy Science and Engineering, civil engineering, environmental engineering, ceramic Engineering, Metallurgical Engineering, Mineral Processing and Engineering, Biotechnology, Biomedical Engineering, Rubber/ Oil/ Paint/Paper and Pulp/ Textile/ Food Technology, (with first division as defined by the awarding Institute/ University) **and GATE qualification.**
- *Four-year Bachelors' degree* in Chemical Engineering or allied disciplines such as Material Science and Engineering, Mechanical Engineering,

Chemical Technology (Polymer, Petroleum, Petrochemical etc.), Chemical Science and Technology, Industrial Chemistry, Engineering Sciences, Energy Science and Engineering, Ceramic Engineering, Metallurgical Engineering, Mineral Processing and Engineering, Biotechnology, Biomedical Engineering, Rubber/ Oil/ Paint/Paper and Pulp/ Textile/ Food Technology (with first division as defined by the awarding Institute/ University) **and a valid GATE qualification.**

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