భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Opening of Junior Research Fellow (JRF) position at IIT Hyderabad

Sustainable Metallurgy & Industrial TecHnologies (SMITH) Laboratory, Dept. of Materials Science & Metallurgical Engineering (MSME), IIT Hyderabad

invites applications for the position of JRF under an Industry-funded project on the

Development of the BOF Process model to optimize the coolant additions towards the green steel making

Essential Qualifications:

i) First class in *B.E.,/B.Tech., in Metallurgy/Materials Science/Materials Eng./Chemical Eng.* & ii) First class in *M.E.,/M.Tech.,/M.S., in Metallurgy/Materials Science/Materials Eng./Chemical* Eng.

Desirable Qualifications: 1. Sound knowledge in heat & mass balance and thermodynamics & kinetic analysis of metallurgical processes; 2. Hands-on training/practice on FactSage/ThermoCalc software; 3. Gate score is preferable; 4. Academic projects in the iron & steelmaking domain are preferable.

Fellowship and allowances: Rs. 37,000/- monthly + HRA (if applicable). Accommodation inside the IITH campus is subject to availability at the time of joining. This position is initially for 11 months and can be extended to subsequent years based on satisfactory performance and fund availability in the industry-funded project.

If you meet the above criteria, please click Link to apply for the position

Application deadline : 3rd Oct 2025
Tentative interview date : Sep 2nd week
Tentative date for joining : 1st Nov, 2025

If any queries about the position, please contact ashokk@msme.iith.ac.in

A successful candidate may be eligible to do a PhD in the allied research area at IITH

About the Project

As the steel industry is one of the largest CO_2-emitting sectors, there is an urgent need to develop efficient processes. In that direction, it is essential to increase the recycling capability of the BOF process by optimizing the process with more scrap as input materials. While doing so, the thermal state and process dynamics need to be investigated thoroughly.

The present project involves developing a BOF process model to investigate the hot metal refining while charging a variable amount of scrap and its influence on end points and refining time.

The successful candidate is expected to have a thorough understanding of heat balance and mass balance of the BOF steelmaking process. In addition, strong foundational knowledge of thermodynamics and the kinetics of metallurgical processes is expected. Much time must be spent at steel plant for data collection, model deployment, validation, etc as a part of the project work.