THAPAR INSTITUTE OF ENGINEERING AND TECHNOLOGY, PATIALA

(Deemed-to-be-University u/s 3 of the UGC Act, 1956)

DEPARTMENT OF ENERGY AND ENVIRONMENT

THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

Letter No.: CoEAM/2026/04 **Date: 11/11/2026**

ADVERTISEMENT FOR POSTDOC FELLOW IN CENTRE OF EXCELLENCE IN ADDITIVE MANUFACTURING (CoE-AM) SPONSORED PROJECT

Project Title: Development of Cost-Effective Antimicrobial High-Entropy Alloys (HEAs) for Infection-Resistant Biomedical Dental Implants via Multi-Feeder Directed Energy Deposition

Position	Postdoctoral Researcher
Duration	12 months, extendable subject to project requirements and performance
Remuneration	Consolidated Rs 60,000 PM

About the Project

The project aims to develop cost-effective antimicrobial high-entropy alloys (HEAs) for infection-resistant biomedical dental implants using multi-feeder Laser Directed Energy Deposition (DED). The research will focus on the design and fabrication of compositionally tailored multi-component alloys, followed by systematic characterisation of their microstructure and functional properties. The work will investigate surface characteristics, wettability, corrosion behaviour and antimicrobial performance, with the overall objective of developing promising implant materials that can help mitigate implant-associated infections while maintaining the material performance required for biomedical applications.

Key Responsibilities

- Design and develop high-entropy alloy compositions for biomedical dental implant applications.
- Plan and execute metal deposition/fabrication trials using multi-feeder Directed Energy Deposition (DED).
- Carry out materials characterisation, including microstructural and phase analysis, and evaluate surface properties, wettability and corrosion behaviour.
- Coordinate and/or conduct antimicrobial testing in accordance with relevant laboratory protocols.
- Analyse experimental data, prepare technical reports and contribute to research publications and intellectual-property development.

Qualifications

Essential: PhD (awarded) or PhD Thesis submitted in Materials Science and Engineering, Metallurgical Engineering, Mechanical Engineering, Biomedical Engineering, Manufacturing/Production Engineering, or a closely related discipline. Candidates should have a strong research background relevant to materials development or advanced manufacturing, along with a strong publication record.

Desirable: Experience in one or more of the following areas will be an advantage: additive manufacturing of metals; Laser Directed Energy Deposition (DED) or other metal 3D-printing processes; high-entropy alloys or alloy design; biomaterials and dental/orthopaedic implant materials; microstructural and surface characterisation; corrosion/electrochemical testing; antimicrobial or biological evaluation of materials. Familiarity with CAD/CAM, materials-modelling tools (e.g., CALPHAD) is desirable.

Last Date for Application: 30 Nov 2026

How to Apply

1. Interested candidates should email a detailed CV, a brief statement of research experience/interests, and contact details of at least two referees to Dr Gaurav Goel (GoeL.gaurav@thapar.edu).

2. The email subject line should read: "**Application for Postdoctoral Researcher – Dental Implant HEA Project**".

3. Shortlisted candidates will be informed by email and invited for an interview. The interview may be conducted online or in person.

4. For project-related queries, please contact: Dr Gaurav Goel, Department of Energy & Environment, Thapar Institute of Engineering and Technology, Patiala.

NOTE: (1) The selected candidate is required to join the position at the earliest, preferably with immediate effect. (2) Incomplete applications shall be rejected. (3) The applicant will be responsible for the authenticity of the information, other documents and photograph submitted. (4) Mere possession of the prescribed qualification does not ensure that the candidate will be called for an interview. The candidates will be shortlisted based on merit and the project's needs. (5) The position is purely temporary and will be governed by the administrative rules/service conditions of TIET, Patiala.

Dr Gaurav Goel, PI
Assistant Prof., TIET

Prof. Noam Eliaz, Professor,
Co-PI, Tel Aviv University, IL

Prof. Saurav Goel, Professor, Co-PI
London South Bank University, UK

Dr Diptiman Choudhury,
Co-PI, Associate Prof., TIET

Dr Malkeet Singh
Co-PI, Assistant Prof., TIET

Prof. Dr Neha Shah, Professor, Co-PI
GNIDSR, Kolkata