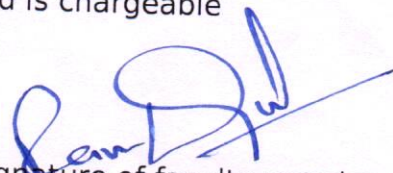


Proposal for announcing seat under the Institute Internship Program

1. Name of faculty member proposing: **Dr. Ram Dayal**
2. Department/Centre: **Mechanical Engineering Department**
3. Topic on which work is proposed: **Mesh Generation for Complex Periodic Structures in Large-Scale Industrial Simulations**
4. Preferred period of internship (after May 20th): **Between May 20, 2024 to June 19, 2024.**
5. Qualification of student (branch/semester of study): **Mechanical Engineering/pre final or final year student. (CV of interested student applied for this internship is enclosed)**
6. Brief description of work (300-500 words): The accuracy and efficiency of Computational Fluid Dynamics (CFD) simulations are largely dependent on the quality of the underlying mesh. It is a well-documented fact that mesh generation consumes approximately 80% of a CFD engineer's time, particularly in complex industrial applications with repetitive structural elements. This project proposes a focused strategy to streamline the mesh generation process by concentrating efforts on creating a high-quality mesh for a unit structure and then employing replication techniques to extend this mesh across entire domains featuring periodic structures.
7. Expected learning of student (upto 100 words): Student involved in this project will gain in-depth knowledge and hands-on experience with cutting-edge mesh generation techniques.
He/she will learn to optimize mesh for specific unit structures, enhancing their understanding of how mesh quality affects the accuracy and efficiency of CFD simulations.
He/She will learn various software tools and algorithms that are pivotal in creating precise and computationally efficient meshes.
8. Nature of work: **Simulation/mathematical modelling involving coding, algorithm optimization, and software development relevant to real-world engineering problems.**
9. If the seat is under project sponsored category: **No**
 - a) If yes, number of seats announced:
 - b) Name and ID no. of project from which stipend is chargeable



Signature of faculty member

Name of department/Centre

Mechanical Engg. Dept.

Note:

- a) Proposing faculty member needs to be available at the Institute during the period internship is offered
- b) No extra space or funding than the stipend will be provided by the institute for this purpose