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**IIT Bombay**

## To Whom it may concern

This is to certify that Karan Shukla (Roll number 2022uch0052) from IIT Jammu participated in the summer internship program at IIT Bombay from 15 May 2024 to 30 June 2024 in the Mechanical Engineering department.

He worked on the prediction of heat transfer and pressure profile for a jet impinging on a flat surface with special reference to the shape of the jet plenum and the thickness of the plenum. He demonstrated that the plenum shape can have a significant effect on the pressure distribution and Nusselt number distribution over the impingement plate. The cylindrical and parallelepiped shaped plenums were used with maximum thickness equal to half the diameter of the jet nozzle. His predictions will be verified by another student who is working on generating experimental data for similar configurations.

He used the commercially available CFD software Fluent for the predictions after verifying the accuracy of methodologies being used by running simulations on benchmark problems. He is a very quick learner and was able to navigate through the software effectively even though he had never used it before he came here. He is very hardworking and intelligent and is able to grasp concepts very quickly and thoroughly. Overall his performance during the period of the internship can be considered to be excellent.

I am very glad he came to work in our laboratory and wish him all the very best in his future endeavours.

*R.P. Vedula*

R.P.Vedula

Professor

Dept. of Mech. Engg.

*30<sup>th</sup> June 2024*