

CERTIFICATE

This is to certify that the revised thesis entitled “**Performance Analysis of Tubular Heat Exchanger Using Enhancer and Nanofluids**” is being submitted by Mr. **SUMIT KUMAR SINGH** in partial fulfilment for the award of Ph.D. in Department of Mechanical Engineering, IIT (BHU), Varanasi is a record of bonafide work carried out by him.

Date of Submission:

Dr. Jahar Sarkar (Supervisor)

Forwarded by:

HoD/CoS

(Signature with seal)

CERTIFICATE

It is certified that the work contained in the thesis titled “**Performance Analysis of Tubular Heat Exchanger Using Enhancer and Nanofluids**” by **SUMIT KUMAR SINGH** has been carried out under my supervision and that this work is not submitted elsewhere for any degree.

It is further certified that the student has satisfactorily fulfilled all the requirements of Comprehensive examination, Candidacy and SOTA for the award of the Ph.D. degree.

Dr. Jahar Sarkar

(Supervisor)

Mechanical Engineering Department

IIT (BHU) Varanasi