

DESIGN CHARACTERISTICS OF CIRCULAR STEPPED CASCADE PUMP AERATION SYSTEM

*Thesis submitted to the
Indian Institute of Technology, Kharagpur
For award of the degree*

of

Doctor of Philosophy

by

Basant Kumar Singh

under the guidance of

Dr. B. C. Mal and Dr. Sanjib moulick



**DEPARTMENT OF AGRICULTURAL & FOOD ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR**

JANUARY 2010

CERTIFICATE OF APPROVAL

21/05/2010

Certified that the thesis entitled “**Design Characteristics of Circular Stepped Cascade Pump Aeration System**” submitted by **Basant Kumar Singh** to the Indian Institute of Technology, Kharagpur, for the award of the degree of Doctor of Philosophy has been accepted by the external examiners and that the student has successfully defended the thesis in the viva-voce examination held today.

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This is to certify that the thesis entitled **Design Characteristics of Circular Stepped Cascade Pump Aeration System**, submitted by **Basant Kumar Singh** to Indian Institute of Technology, Kharagpur, is a record of bona fide research work under our supervision and is worthy of consideration for the award of the degree of Doctor of Philosophy of the Institute.

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