

## **Acknowledgement and Dedication**

I am very grateful and in debt to my supervisor Dr. C. K. Behera and Prof S. Mohan for his consistence help, encouragement, valuable discussions, and also the faith to me during the entire period of my research work.

Besides my Supervisors, I would like to thank RPEC members: Dr. J. V. Tirkey, Prof. O.P. Sinha, for their insightful comments and encouragement. I could not forget to give credential to, and former HOD, Prof. R. K. Mandal and Prof. G. V.S Sastry who nucleates the idea inside me for doing Ph.D. My sincere thanks to Prof. and Head N. K. Mukhopadhyay and Prof. S. N. Ojha who strongly supports encourage me continuously even at the crucial time of Ph.D. work.

I am also thankful to Prof. Vakil Singh, Prof. T.R. Mankhand, Prof. N. C. Santhi Srinivas, Prof B.N. Sarma, Prof. K.K. Singh, Prof. I. Chakkraborty, Dr. J. Basu, Dr. R. Manna, Dr. K. Chattopadhyay, Dr. J.K. Singh, Dr. A. Mandal, Dr. B. Mukharjee and Dr. Randhir Singh for their valuable suggestion as well as teaching during course work

My special thanks go to Prof. M. Shamsuddin, Ex. HOD, Metallurgical Engineering, and Dr. S. Jha who taught me a lot to make the present shape of my thesis. I am also grateful to all the teachers and all my beloved colleagues for their continuous support during the entire period.

I am also thankful to Dhananjay Pradhan, Vinay kumar Rai, ,Dheeraj jaiswal and Vikrant kumar for their support during my experiment.

I could not forget the contribution of my lab staffs specially Ashok kumar Mishra, for helping during experiment.

Last but not the least, I would like to thank my family for supporting me spiritually, specially my wife who crossed all the hurdles with smile during this period without hampering my work and finally to my daughter to whom I could not look after properly in this period.

(MUKESH RAUSHAN KUMAR)