ACKNOWLEDGEMENT

The present thesis is the collection of the studies that have been conducted under the collective direction of Dr. D. Abdul Budan, Prof. & HOD, Dept. of Mech. Engg. UBDT College of Engg, Davengere and Dr. P.Martin Jebraj, Principal, Dr. Dr.Ambedkar Institute of Technology, Bangalore.

I would like to express my deepest gratitude to my guide Dr. D. Abdul Budan & Co-guide Dr.P.Martin Jebraj for extending all the valuable support and time for discussions, useful advices and encouragement through out the study, the passion with which the work was guided and for their determination to bring it to completion.

I would like to express my gratitude to Dr.B.S.Jaiprakash, Ex-Principal of Bangalore Institute of Technology and Dr.K.R.Suresh, Principal, Bangalore Institute of Technology for having provided all necessary facility and assistance for carrying the research work.


I would also like to gratefully acknowledge the support of Mr. M.K.Prasanna Kumar, Lect. Dept. of Mech. Engg, Bangalore Institute of Technology for valuable co-operation during the experimental work.

My special thanks to my students, Prajwal Swamy, Mahesh.M.Bhat, Manu.M and many others, for their constant support and co-operation in completing this thesis.
I would also like to express my gratitude to Mr. Yogananda, Mr. Naveen (Driver), Mr. Gangadhar, Mechanic, Dept of Mech.Engg. BIT, Mr. Narayanswamy, Instructor, Dept of Mech.Engg. Bangalore Institute of Technology, to all my friends and my colleagues, Teaching and non-Teaching of Bangalore Institute of Technology and Dr. Ambedkar Institute of Technology Bangalore for lending constant support and cooperation to me in completing the thesis.

I am highly indebted to Management of Vokkaligara Sangha for providing the facility and helping me throughout the course of study.

I greatly acknowledge the support from my parents, wife, daughter and all my family members for their forbearance in promoting this work.

Last but not least, I also thank all those who have contributed directly or indirectly in this research work.

S. Vidya Shankar