ACKNOWLEDGEMENT

I am greatly indebted to the Almighty for the immense grace and blessings, which strengthened me throughout the way of this research work.

First and foremost, the successful completion of this thesis work is devoted to the sincere help and guidance rendered by my guide Dr. A.N. Balaji, Professor, Department of Mechanical Engineering, K.L.N. College of Engineering, Pottapalayam. I remain obliged to him for his help and able guidance through all stages of this thesis.

My Profound thanks to Dr. A.V. Ram Prasad, Principal, K.L.N. College of Engineering and Dr. P. Udhayakumar Professor and Head, Department of Mechanical Engineering to facilitate my work and for their support and encouragement during the course of my work.

I am extremely indebted to Dr. N. Jawahar, Professor & Dean (R&D), Thiagarajar College of Engineering, Madurai. His ideas and interpretations helped considerably on my research. I am also thankful to Dr. B.S. Girish, Associate Professor, Indian Institute of Space Science and Technology, for his valuable suggestions during the course of my research work.

I also thank my doctoral committee members, Dr. M. Kathiresan and Dr. V. Anbumalar for agreeing to serve on my committee and for also making timely suggestions that helped improve the outcome of my research.

Above all my heartfelt thanks to my Husband Mr. R. Sathishkumar and my daughter S. Nithika Sri and my family members. Without their motivation I may never have reached this goal and I owe this to them.

S. PORSELVI