ACKNOWLEDGEMENT

I would like to express my sincere gratitude and appreciation to my supervisor, Dr. K. Raja, Assistant Professor, Department of Mechanical Engineering, Anna University, University College of Engineering, Dindigul for his support, patience, and encouragement throughout my Ph.D course. His wide knowledge and his logical way of thinking have been of great value to me. His understanding, encouraging and personal guidance have provided a good basis for the successful completion of this thesis. It was a great experience working and learning with him. In short I would like to dedicate my rest of the life to reciprocate the knowledge what I gathered so far.

I am delighted to record my deep sense of gratitude and indebtedness to my Doctoral Committee members Dr. S. Raghunathan, Principal, Jeyalakshmi Engineering College, Thoppur and Dr. P. Sathiya, Associate Professor, Department of Production Engineering, National Institute of Technology, Trichy, for their unstinting support and valuable guidance throughout the duration of the research.

I would like to thank my institution, Anna University, University College of Engineering, Ramanathapuram, for giving me the support during the course of doing my research programme to pursue the research.

Special and deep thanks to my father, Mother, Wife, and Brother for their moral support and motivation. I extend my thanks and appreciation to my friends, colleagues and everyone who helped to get this work done.

CHANDRA SEKAR VS