ACKNOWLEDGEMENT

The author wishes to express his deep sense of gratitude to his thesis supervisors Dr. Souren Mitra and Dr. Soumya Sarkar, Associate professors in Production Engineering Department, Jadavpur University (JU) for their valuable advices and guidance, constant help, support and encouragement at every stage of progress of this thesis work. The author gratefully acknowledges the management of National Engineering College, K.R. Nagar – 628503, Tamilnadu, India for deputing him to pursue Ph.D. under QIP scheme of AICTE, New Delhi.

The author is grateful to Thiru. A.T. Muruganandam, Technical staff at IICB, Kolkata for his co-operation in taking SEM micrographs. The author sincerely thanks Thiru. Biswanath Das, Senior mechanic of Production Engineering Department, JU for his help in preparing the workpiece material. The author also grateful to Prof. S. Ayyappan and Prof. G. Arun Kumar of Government College of Engineering, Salem for their efforts and help in getting Migration certificate from Periyar University. The author sincerely acknowledges the help and support extended by his friends Dr. S. Sankaralingam and Thiru. Sagar Ulhas Sapkal.

The author also expresses his gratitude to all faculty members and fellow researchers Thiru. M. Sekh, Thiru. M. Singha, Thiru. E. Suresh kumar and Thiru. Nilanjan Roy for their support and inspiration in carrying out research studies. The author sincerely acknowledges the people of Kolkata (city of joy) for teaching him the real meaning of life.

The author is very much grateful to his father G. Gurusamy and mother G. Sundari for their continuous support and blessings. The author sincerely thanks his mother-in-law R. Pushpa Natchiyar for taking care of his daughters in the past ten months. My greatest thanks have to be reserved for my better half R. Meenakshi sundaram and my daughters S. Shenbaga Sundari and S. Haritha for their steadfast support, encouragement, company and patience during the course of this work. Last, but not the least, the author sincerely thanks all of them who contributed directly or indirectly to this research work and helped the author in making the research work a success.

G.Selvakumar