

ACKNOWLEDGEMENTS

I Place my belief on record to the inevitable almighty – **Lord Nataraja** for being my abode throughout the research work.

I am extremely thankful to **Shri. Shiv Das Meena, I.A.S**, Administrator, Annamalai University and **Dr. N. Panchanathan**, Registrar, Annamalai University, and **Dr. S. Velusamy**, Dean, FEAT for providing all necessary infrastructure facilities and extending their cooperation in all possible ways.

I pay my humble respects to my young dynamic, esteemed and flamboyant Professor and guide **Dr. D.Kanagarajan**, for his earnest interest, efforts, affection and encouragements for completing my research work in time. Without his blessings and support, this research would not be a reality by this time.

I would like to express my deep and sincere gratitude to my guru **Dr.V.Balasubramanian**, Professor, Department of Manufacturing Engineering, Annamalai University, for his erudite guidance, affectionate encouragement and whole-hearted involvement in my project. His extensive discussions around my work and interesting logical way of thinking have been of great value for me, without which it would have been difficult for me to complete this work

My heartfelt gratitude to, **Dr.S.Pugazhendhi** Professor and Head, Department of Manufacturing Engineering for his support, encouragement and blessings throughout my research programme.

My sincere thanks to **Dr.N.Anatharaman** and **Dr.K.Raghukandan**, both Former Head's, Department of Manufacturing Engineering for their support and encouragement during my research programme.

I am also grateful to my teachers **Dr.G.Ganesan**, **Dr. C. Muralidharan**, for their sustainable support.

I wish to express my sincere thanks to **Dr. S. Malarvizhi**, Associate Professor of Manufacturing Engineering for her interest shown to my progress and for her timely help.

I wish to express my sincere thanks to **Dr.K.Shanmugam** and **Mr. S. Raju** Associate Professor, **Dr.V.Srinivasan**, **Dr.S.Anbuselvan**, **Dr.B.K.Ragunath**, **Dr.M.Seeman**, **Dr.C.Senthilkumar**, **Dr.G.Padmanaban**, **Dr.S.Rajakumar**, **Dr.V.Sathiskumar**, **Mr.B.Asaitambi**, **Mr. N.Mohammed Raffie**, **Mr.K.Niranjan**, **Mr.V.Chandrasekarn**, **Mr.I.Ashokkumar**, **Mr.V.Subravel**, Assistant Professors, Department of Manufacturing Engineering, Annamalai University for their support motivation and help in pursuing my research programme.

Words are indeed insufficient to express my heartfelt gratitude to the **Dr.A.K.Lakshminarayanan**, Associate Professor, Department of Mechanical Engineering SSN College of Engineering Chennai **Dr.C.S.Ramachandran**, Post-Doctoral Fellow, State University of New York, USA. **Dr.M.Balakrishnan**, Professor, Department of Mechanical Engineering, M.kumarasamy College of Engineering Karur.

I am very much thankful to the **CEMAJOR** supporting staffs, **Mr.S.Muthukumaran**, **Mr.N.Sairaman**, and **Mr.A.K.Thillai Paraman**, and other well wishers for their constant support, help and encouragement during my research programme.

Also I am extremely thankful to technical staff members **Mr.A.R.Karthikeyan**, **Mr.S.Balaguru**, **T.Raja**, **R.Prasath** and all other staffs for their constant support and help during my specimen preparation and testing.

I wish to acknowledge the technical support rendered by **Mr.S.Karthikeyan**, **Mr.S.Sreesabari**, **Mr.M.Vinothkumar**, **Mr.C.Thiruvikraman** **Mr.S.Ragunathan**, **Mr.R.Kamal Jayaraj**, **Mr. I.Rajkumar**, **Mr.S.Gnanasekaran**, **Mr.K.Karthick**, **Mr.S.Vignesh** research scholars of our Department.

During this work I have collaborated with many colleagues for whom I have great regard, and I wish to extend my warmest thanks to all those teaching and non- teaching staffs who have helped me in **CEMAJOR** with my work in the Department of Manufacturing Engineering, Annamalai University.

Certainly, words are insufficient to express heartfelt thanks to my father **Shri. R.Paramasivam**, mother **P.Amutham**, wife **Mrs. S.Sathiya**, my elder son **S.Shivachandhran**, and younger son **S.Sivakrishnaa** , my brother **P.Sivaguru** and family, father-in-law **Mr. K.Selvaraj**, mother-in-law **S.Amutha**, Brother-in-law **Mr.S. Mageshwaran** and other family members for their adjustable attitude, patience and sacrifice all the three years for their help really helped me to complete in appropriate time.

19th DECEMBER 2014

(P.SIVARAJ)