## ACKNOWLEDGEMENTS

First, I would like to express my sincere appreciation to my Ph.D. advisor, Dr. Suebsak Nanthavanij, for his invaluable suggestions given to me since the beginning of my study in Ph.D. Program throughout several years of magnificent research experience. I am grateful to his very good advice and support to my study and my research. He helps me to edit and rewrite the manuscripts for journal submission as well. He is an excellent advisor and professor I have ever met. I am indebted to the useful comments of my Ph.D. co-advisor, Dr.Junalux Chalidabhongse, as well.

I would like to acknowledge the support provided by the Thailand Research Fund through the Royal Golden Jubilee grant during my study at SIIT throughout my academic years.

I am thankful to every valuable comment and suggestion from my research committee members, which are Dr.Pisal Yenradee, Dr.Ruengsak Kawtummachai, Dr.Junalux Chalidabhongse, and Dr.Suwan Runggeratigul. Their advice has always been helpful to my researches.

I am appreciative for all faculty members of Industrial Engineering and Management Technology of SIIT, for their support given to me. Many thanks go to all my colleagues in Industrial Engineering of SIIT who guided me for the study and research, and also to my friends in Information Technology, and Management Technology of SIIT, for their help.

I would like to express my appreciation to Dr. Sanchoy K. Das, a professor at NJIT who supervised and provided useful comments to my research. I also would like to thank many individuals in New York and New Jersey who kindly helped and took good care of me for the 4-month research period at NJIT.

I wish to thank my father, my mother and my relatives who strongly support and encourage me for my study and life. Without their great support, I will not be able to graduate my Ph.D. study. Finally, I wish to dedicate this research to my parents who always kindly and greatly take very good care of me.