Acknowledgement

On the completion of this thesis, I would like to express my appreciations to many people who have contributed their supports to me in any form.

Firstly, I have to say many thanks to my advisors, Asst. Prof. Dr. Pornphan Verapreyagura, Assoc. Prof. Chuenjit Changchenkit, and Dr. Piyasak Manason for their time, tolerance and valuable advices.

Many thanks to all MIRED lecturers, Mr. Keerati Satasook, Dr. Kongkoon Tochaiwat, and Mr. Arun Sirijanusorn, for their supports since the course commencement.

Thirdly, I have to say thank you to my family for all of supports since the beginning of my life.

Lastly, I would like to thank Miss Jinatta Imaromkul, department secretary, for all of her assistances. I also would like to thank my friends in MIRED#1 for their sympathy and supports. They give me a great time during the study.

<div style="text-align: right">

Chanida Kitvorametha

Thammasart University

2553

</div>