

## Acknowledgment

It gives me immense pleasure to get an opportunity to express my heartfelt gratitude towards my respected supervisor, **Dr. Kalpana Chaudhary**, for her enthusiastic encouragement, guidance, support and valuable suggestions throughout my research work. Her constant monitoring and interest in my work over the last four years will always remain as a happy memory. I would like to express my great appreciation to Dr. Kalpana Chaudhary for her valuable and constructive suggestions during the research work. I will always remain thankful to her.

I express my gratitude to Dr. Santosh Kumar Singh, Dr. Anil Kumar, Prof. Rakesh Kumar Srivastava and Prof. Devender Singh, the current Head of the Department for their whole heart support.

I also wish to thank my RPEC member Dr. Santosh Kumar Singh and Dr. Anil Kumar for the invaluable inspiration and numerous insightful suggestions during the entire course of this research.

I am thankful to the Head, Department of Electrical Engineering, and Prof. In charge of CIFC, IIT(BHU) for extending experimental facilities during the entire course of this research work.

I am also thankful to all the technical, non-teaching as well as official staffs of the Department of Electrical Engineering, IIT (BHU) Varanasi for their assistance when needed and also for providing me humorous relief at times.

I would also like to express my extreme gratefulness towards my senior research members Mr. Rajaram Kumar and Mr. Om Prakash. I want to thank Dr. Chandra Shekhar Prasad from IIT Kanpur for his excellent company, support, and encouragement throughout the study.

All along the period of my research, my colleagues provided an exciting, comfortable and mutually beneficial atmosphere. In this regard, Mr. Anil Kumar Pal, Mr. Tripurari Das Gupta, Mr. Kumar Abhishek Singh and Mr. Mukesh Kumar deserve special mention and thanks.

The cooperation, moral support and constant motivation which I have always received from my friends cannot be expressed in words, and I feel lucky to be blessed with such wonderful friends.

It fills me with a broad sense of reverence when I think about my parents and my preceptor. Their constant encouragement, moral support, and co-operation at every step of my life cannot be expressed in words. I am thankful for their love and blessings. My special thanks are also to my uncle, aunty, brothers, sisters, sister in laws and brothers-in-law, nephews and nieces for their love and affection.

I wish to thank all my friends and foes and the persons whose names have not been included on this piece of paper for extending their cooperation directly or indirectly. Lastly and most importantly, I wish to thank my wife for their eternal support and for being on my side through entire ups and downs. I love her for everything. I owe my deepest gratitude to my daughter Shreeja for giving me a reason to live and try every day.

**June 2018**

**(Deepak Kumar)**