PREFACE

In chapter 1, Introduction to Wind Energy Conversion Systems and its technical challenges when penetrated into the existing system, enhancement of voltage profiles using FACTS devices is presented. In chapter 2, literature survey of WECS, modeling of wind turbine generators, grid integration challenges, implementation of FACTS devices with intelligent techniques, gaps in the research findings are presented.

Chapter 3 deals with modelling of wind turbines, power control techniques in various wind turbine generators is presented. The stability analysis and comparison between SCIG and DFIG wind turbine generators is presented. Based on the simulation work better generator for the wind turbine is presented.

In chapter 4, steady state and dynamic stability analysis of wind farms with DFIG is presented. Based on the analysis, implementation of FACTS devices with intelligent controllers is presented for voltage profile improvement. The simulation results are presented and discussed.

In chapter 5, transient stability analysis of grid connected wind farms is presented and enhancement of voltage profiles using FACTS devices and intelligent techniques are presented and discussed.

In chapter 6, the results and detailed discussion of the work is presented and in Chapter 7, the conclusions and future scope of the thesis are presented.