

I, Nishat sultana, am applying to "University of Texas, Dallas" for the admission to Ph.D Program in Electrical Engineering. I am from a social group, where girls are considered enfeebled to study engineering and very few girls enter into an engineering program due to social constraints. Since my childhood, I have continued to prove academic excellence and never let any social constraint to obstruct my education. Now I want to enter into a Ph.D program to accomplish my ultimate goal of a research oriented career.

I have completed my Bachelor's of Science degree in Electrical And Electronic Engineering from Independent University, Bangladesh, which is very reputed for its quality education and world class research. During these 4 years, subjects like Digital signal processing, Control systems, Power electronics, Telecommunication, Electrodynamics, Optical fiber communication, Embedded systems, C++ & MATLAB programming have aroused my research instincts. My present research interest includes Control and Robotics, Electric Power and Energy Systems, Electromagnetics and Remote Sensing, Lasers, Plasmas, Quantum Electronics, Digital Image and Signal processing etc. While attending class of the Circuit and systems, One day the instructor explained us the vastness of the field of "Electrical and Electronic Engineering" and right from that day, my interest in the subject has intensified and I committed to myself to reach my goal of pursuing higher studies in this field. Therefore, now I am hoping for a research oriented career in the future and the first step to achieve it will be joining in the higher study team.

An ever growing aspiration to become a researcher started burgeoning inside myself during working voluntarily in the conference ICCIT, 2009. During the next summer break, I inquisitively started doing research on "Effects of Electromagnetic Radiation on human health" with Prof. Abdus Sobhan. Since then, in every semester, I was always actively engaged in some form of research. As a part of my devotion to research, I mastered in MATLAB coding and built several MATLAB and SIMULINK models of Digital Signal Processing and different modulation techniques. My research was not only confined within these areas as I presented several academic projects during my Bachelor's studies, for instance, Solar tracking system using microcontroller, Robot control system, Stepper motor control system, Maximum power detection of solar panel & solar inverter, PIC16F877A microcontroller based room temperature monitoring system, Image processing using FFT and DCT in the MATLAB environment etc.

In the second last semester of my undergraduate studies, I was greatly inspired by my teachers to do research oriented final year senior project instead of choosing internship. This opened a new window for me to work in a very updated and labwork based senior project- "An experiment based study on Software Defined Radio(SDR) using MATLAB". Here, I started doing project with the development of background knowledge of Software Defined radio and conducted empirical studies using a very sophisticated device "Universal Software Radio Peripheral (USRP) N200 Model". My laboratory works started with test, installation and network configuration of the real time, open source USRP device in windows environment. I experimented real time wireless transmission and reception of FM signal, Self generated Voice signal, Sine wave and Chirp signal using MATLAB, USRP and Universal Hardware Driver and detected limitations toward installation and optimum transmission parameters. A successful completion of the senior project has rewarded me with invaluable research skills like Proficiency in Journal review, academic book review, summarizing and synthesizing information from journal papers, IEEE journal paper formatting, analysis and critical thinking skills, handling new lab instruments and endurance to prolonged laboratory works. All these skills have made me apt, confident and interested to pursue research based graduate studies.

At present I am working as “Assistant Engineer” in the country’s one of the leading Group of industries - “Bengal Group of Industries” in Solar power unit. Here, I am responsible to design small Solar Home Systems and as a part of the team, I am actively taking part in large urban Solar projects too. My responsibility also includes preparation of the technical paper works of the tender and participation in the bidding process of large Solar projects. I am looking forward to integrate my acquired research knowledge and recent work experience in my future graduate studies.

During studying in IUB, I got the opportunity to work as an Undergraduate Teaching Assistant (TA) and accomplished the responsibilities of facilitating student learning by providing tutorial hours and classes, assessing homework tasks and assignments, monitoring class tests with the instructor, recording grades & attendance. Since I believe, knowledge should not be caged, from grade 12, I tried my level best to spread my knowledge by teaching primary, high school and college level students as a private tutor. Through my limited teaching experience of student life, I have learned and practiced contributing to the family, time management, discipline, self sufficiency and conducting social responsibility along with academic excellence. If I get the opportunity to pursue higher studies, I will be one step ahead to pursue the career of a Professor and will be able to fulfil my ultimate goal of accomplishing the career of engineering research.

My devotion to study was greatly inspired upon receiving the 100% tuition waiver at IUB as Merit Scholar for my previous academic excellence. I was honored by receiving the certificates of: Vice Chancellor’s honor list (*Twice*), Vice Chancellor’s List (*Thrice*), Dean’s Merit List (*Twice*), Dean’s List (*Once*). In the last two consecutive semesters, I received prize money for showing consistent academic excellence. I was greatly encouraged by the Vice Chancellor to endeavor for a research based higher studies.

My preparation to pursue higher studies is a combined result of my education and extra curricular activities. My participation in after school community service like going to “Mother Teresa Homes” to take care of underprivileged people has grown responsibility inside of myself to work for the betterment of the community. During my undergraduate study, I became elected as Vice Chair of IEEE IUB Student Branch. From here, I actively took part in organizing academic tours, conferences and technical workshops. I also worked as the Cultural affairs officer of “Club of engineering and Computer Science” and organized several technical workshops, project competitions and cultural programs. I also participated in IEEE sponsored conferences like ICCIT’2009, ICCPB’2011 as a volunteer. I believe, all these experiences and accomplishments have helped me greatly in preparing myself best fit for future higher studies in the “University of Texas, Dallas”.

Although women are considered as minority groups in the fields of science and engineering, I want to alter this vague perception by my intelligence, diligence and devotion. After a decade, I expect myself to be the paradigm for the future generation by working as a great Research Scientist or as a Professor at a top university. I discern that M.Sc accelerated to Ph.D is necessary to obtain my goal. Therefore, I want to get myself admitted into a reputed University in the graduate study Program, where I will get the opportunity to pursue Ph.D after successful completion of M.Sc.