

Sample Statement of Purpose – Physics

At an age of eight, I came across an article in a children's news paper on how to use simple devices to setup a circuit which I believed to be fascinating. Without knowing anything about soldering, I wired the circuit as appeared in the paper and tightened the terminals instead of soldering. The circuit was simple, with the use of only a 2SC828 transistor, LED and a 1 k Ω resistor, and at this point I was not exactly sure of what this device was capable to output. But when a conducting material was placed in between the terminals of this circuit, the LED was turned ON. With this insight, I was fervent to construct some other simple circuits published in the same news paper but I was never in a position to understand how the transistor, the miniature three-legged component was able to result in such an output. Two years later, I realized that the transistor is a switch and it will pass current through collector to emitter when a positive current is applied to the base terminal. It was my first scientific investigation. At that time I had no knowledge about semiconductors and theories behind the Transistors. But with time I learned about semiconductor devices and progressed as to attain the belief that physics is the subject which links to give the ultimate understanding of such phenomena.

After completing my primary education (General Certificate of Education- Ordinary Level) I decided to follow Pure Mathematics, Applied Mathematics, Chemistry and Physics for my G.C.E Advanced Level (General Certificate of Education - Advanced Level) which is similar to high school level within the UK education system. This confronted me with a wide scope of view covering diverse corners of science, but intriguingly, Physics was the subject where most of my interest was focused. As our country has a free education system, the opportunity to enter into a state university is highly scant. But I was fortunate enough to be among the top 5% of the student population who are granted such fortune at the successful completion of G.C.E. Advanced Level. Moreover, I was able to enter into a bachelor's degree program in science at the University of Colombo, which is well-known as the best university within the country, specifically in the case of physics.

The time period elapsed between my high school and university entry enabled me to follow a course in Aeronautical Engineering at the Asian Aviation Centre-Sri Lanka affiliated to Kingston University UK and also was able to obtain an opportunity to train at the "Aeronautical and Engineering Wing" of the Sri Lankan Air Force (SLAF-Katunayaka Base). During this tenure I observed how simple theories of physics were applicable in a practical context and this itself, made me more and more attracted to this practical science.

In the first two years of my undergraduate studies at the University of Colombo I followed courses in Physics, Applied Mathematics, Computer Science and Statistics. And with my first two-year performance, I was offered to follow a major in Physics. The course offered me a great deal of insight into Physics with a strong mathematical background. As my fourth year research project, I selected the experimental designing of a robot arm, based on my sound knowledge of electronics and physics. The title of my research project was "Designing and constructing of a Mechanical Electrode Arm for Electro deposition of Multi-Layer Thin Films" and accordingly I constructed a mechanical device that works as a robot, consisting of two degrees of freedom enabling it to move in a Cartesian workspace. It was an automated device which was controlled by PIC 16F877A microcontroller. Fabrication of thin films using electro deposition requires different times ranging from minutes to hours and sometimes even days, depending on the

desired thickness, the number of layers and the composition of the layered structures. An automated deposition mechanism helps such growth processes reducing the human involvement and thus saving the time and money. I have submitted a scientific paper on the above research to the committee of the 25th Technical Sessions of the IPSL (Institute of Physics Sri Lanka) and it is currently under review.

As I have obtained a 1st Class Honors with a GPA of 3.77 on a scale of 4.00, in B.Sc Special in Physics, I got an opportunity to work as a Temporary Assistance Lecturer at the Department of Physics at the University of Colombo itself and my current work involves conducting and evaluating laboratory sessions for 1st & 2nd year undergraduates. Additionally, I am the Instructor in-charge of “Electronic and Computational Physics” laboratory course for the 1st & 2nd year students and I was able to gain the experiences of designing, coordinating, and overseeing the laboratory sessions during the last few months. This was an immense opening for me to gain more experience which would help me in holding a Teaching Assistant position in my future graduate studies. Honestly, it is the entire scope which is governed by physics which has aroused my interest towards this science so far, no matter whether it is theoretical or experimental. However, I hope to concentrate more on “Condense matter,” Solid State Physics” or ”Nano Science” in my future graduate studies because I believe that these will be the areas in which most of my potential could be wholly unleashed. While doing my undergraduate studies I hope to complete the “Advanced Technician Diploma in Engineering” and “Engineering Council Graduate Diploma” conducted by the “City and Guilds (UK)”.

While in university, I actively participated in sports, especially in “Rowing” in which the University of Colombo were the consecutive champions for a number of years and I was also honored with university colors for my achievements in the above facet. I won the overall 2nd place in the “Men’s Pair” event and 3rd place in the “Men’s Scull” event at the 23rd Sri Lanka Rowing National Championship Regatta 2007. Additionally, I was part of the champion team at the “Tenaga Uniten Rowing Regatta at Malaysia in 2006”, bringing great honor to my institute as well as my motherland. Moreover, I gained an enormous experience as a University Captain (in 2008) and FISA level-1 Coach of Rowing, which could not have been attained simply via an academic carrier. I had also taken part in long distance running events and obtained 3rd place (Distance 10.5 km) at the “Road race 2007-University of Colombo”, further justifying my competence in a diverse range of fields. I like to spend my leisure time involved in rowing, hiking, playing cricket and meditating....etc, because I’m a strong believer in poising both mental and physical fitness.

I wish to do my higher studies in Physics with the intension to obtain a Ph.D and later to engage in research and teaching as a carrier. Having obtained the advices from my professors, seniors and colleagues about my choice of Universities, I have applied to University as it is reputed for research facilities and resources. The department web site also revealed a very strong faculty involved in extensive research in the area of Physics, especially in “Nanoscience and Material Physics”. This has strengthened my resolve to study at University. Thereby I believe that I will have an opportunity to serve and support my nation as a payback for the free education that the country has given to me.