

## Statement of Purpose

### Rajnish Deo

Looking back into retrospect, kaleidoscope reflects courses of life that eventually placed me in this position; applying for “**Master of Technology in Electrical Engineering**” in one of the top Institute of the world, **INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR**. A boy from small town of Nepal, born in semi-educated family has successfully grown into the prospective graduate student. I can still remember the joy and celebration we had when my village glowed with electricity for the first time. From the day on we used to wait for the moment to switch on the light. It made me curious about where and how electricity comes from and how the appliances glows with consumption of Electricity. From the day I want to be its creator. My deep-seated curiosity in electricity, and strong inclination towards the applied science led me to take up science major in higher secondary school and subsequently, Electrical and Electronics Engineering at undergraduate level.

And today, with undergraduate degree in electrical and electronics engineering and nearly four years of experience I have dreamed to expand the horizon of knowledge on power system, and to discover new sets of paradigms in realm of energy and power system engineering. Amid the world advancements and recent developments in the field of Energy and power systems, Nepal- my home country, is struggling to avoid looming energy and economic crisis as it has to import around fifty percent of energy from India to avoid load shedding and forced outage. While there are still thousands of village untouched from the Electrification due to insufficient generation. As from my own experience, while doing the survey of Transmission Line of Hydropower Project, we used to stay in village where still today Electrification is not done. The fact that country generates less than 2% of estimated techno-economic viability of hydro-electricity hurts nation pride in water resources. Furthermore, lack of expertise, well-connected power grid, inadequacy in transmission and distribution system are making situation further worse. This whole scenario makes the ground for my relentless pursuit for **Master of Technology in Electrical Engineering with Power and Energy System, at Indian Institute of Technology, Kharagpur** in order to volunteer my nation towards self-reliant and self-dependent in energy and power system.

In order to realize my dream, I need to have rigorous training and expertise in this field, which I hope to acquire only going through graduate studies. It is undeniable fact that it will be less easy to fulfill the demands that every graduate study requires from prospective students without adequate preparation and expertise. Given that, I have well prepared, trained, and seasoned myself through four years of undergraduate education and four years of work experience in order to face greater challenges of graduate studies in this field.

First of all, I got full scholarship to pursue my “**Bachelor of Engineering**” in “**Electrical and Electronics Engineering**” at one of the most prestigious college of India- **M S Ramaiah Institute of Technology, Bangalore** through tough national competitive entrance examination called “**COMPEX Exam**’ organized by **Indian Mission at Nepal**. From then onwards, I became an avid learner trying to decode the art of electricity and electric machinery by taking every opportunity provided inside & outside the college. On one such occasion, I received opportunity to participate in one week workshop on “**Advances in Power Systems and Protection**” conducted at M S Ramaiah Institute of Technology in association with Power Research and Development Consultants Pvt. Ltd, one week summer school on “**Non-Destructive Testing and its application: Perspective of Imaging**” and 4 weeks Intensive hands workshop on “**Graphical System Design using NI LabVIEW**” Where, I attended various presentations on Power Electronics, Renewable Energy Integration, Power system analysis, Analysis of various power system networks, Non-Destructive Testing of Pipelines and Design in NI LabVIEW Systems from

respected personalities of reputed organizations. Participating in the workshop instilled in me the vigor and enthusiasm to follow the Power and Energy Systems in my graduate study.

As a part of my major project, I headed a team project **“POWERTRAIN CONTROL OF AN ELECTRIC VEHICLE”**, supervised by **Asst. Prof. Kusumika Krori Dutta**, where my team research on techniques to control the supply of Powertrain Motor of Electric Vehicle with implementation of Gear for Forward and Reverse Mode. With the completion of the project, I had developed knowledge in Electric Motors, Controller, Traction of Electric Vehicle, Power Electronics, along with programming and hardware skills and knowledge in MATLAB/Simulink, Proteus. In addition, I was involved in number of the projects like **microcontroller** based Solar Kids’ Car in Sixth semester-exhibited in Departmental Exhibition, automatic light control system in fifth semester, JK flip flop model, traffic light in the third semester and light sensor (street lamp) in the first semester.

Likewise, I presented the paper based on my final year project in the **IEEE INTERNATIONAL CONFERENCE ON SCIENCE, ENGINEERING AND TECHNOLOGY**- an esteemed national conference on science and engineering- organized by Kalaighnarkarunanidhi Institute of Technology (KIT), Coimbatore, India.

In the course of bachelor studies, I was unanimously selected as **Class Representative (CR)** which provided me room to work with professors and department. I worked as a volunteer for our Departmental Fest called **“Amperage”** which organizes technological festivals, seminars, talks programs every year. With all these involvement and participation in activities and projects, I evolved as competent student with excellent leadership and interpersonal skill.

I’m working as Electrical Engineer in CEDB Hydropower Development Company for nearly four years. During this time, I have been involved in power plant design, transmission line design, electromechanical equipment selection and specification, preparation of single line diagram, switchgear specification and other monitoring, managerial, construction and erection work of the project. Such real-life experience honed my expertise in electrical engineering along with project management tactics, team works, and work ethics. Likewise, reading and understanding of Civil and Hydro-Mechanical Drawings used for construction of Hydropower Project.

In light of aforementioned academic excellence and experience, I’m duly ready for graduate study, where I will take **“Power and Energy System”** track exploring research in Power System, HVDC, Wide Grid, Renewable Energy, Power System Economics and Market, Power Electronics, Power Transient and Power Quality, Power System Protection. I’m fully cognizant that program is highly rigorous and demands extensive math skills and theoretical knowledge in research. However, I have every reason to believe that one with strong math background, academic excellence, intellectual prowess and wide knowledge of advancement in technology and most importantly unshakeable commitment towards goal is with special advantages to be highly potential candidate for the program.

I have chosen the **Power and Energy System at Indian Institute of Technology, Kharagpur** to pursue my M. Tech. degree in **Electrical engineering** as this Institute ranked 314 in the Quacquarelli Symonds (QS) World University Rankings by Subject for 2021. I have garnered the information regarding university fascinating faculty members, research centers & lab through website of **IIT, Kharagpur** and became captivated by different labs and groups dedicated for it. I’m eager to work with distinguished Professors **Ashok K. Pradhan, Dheeman Chatterjee, and Debapriya Das** whose research interest perfectly intersect my intended area of exploration. And also, advanced research resources, labs and facilities with fertile academic landscape in the bed of IIT, Kharagpur are very conducive for innovation, accomplishments and development of my career. With the level of research and volume of scientific paper publication at IIT, Kharagpur, I truly believe that I could reach my dream in finding the answers and

utilizing it to make impact globally. I would highly appreciate being provided with an opportunity to be admitted as graduate student at IIT, Kharagpur. Finally, I would truly like to thank for your time in reviewing this application.