

I am Shantanu Anand, a Master of Technology final year student of Indian Institute of Technology (IIT) Kharagpur. I want to apply for an extremely innovative Joint Doctoral Program on “Sustainable Management of Plastic Waste”.

Currently, I am pursuing Master of Technology in Infrastructure Design and Management which is an interdisciplinary specialization. During Master's. I interned at “Mithinga Solid Waste Management Private Limited, Patna” where I understood the decentralized waste management system, management of compost units and executed waste source segregation awareness programme with households and societies in collaboration with Patna Municipal Corporation.

My Under-Graduate degree is Bachelors of Technology in Civil Engineering from Indian Institute of Engineering Science and Technology (IIST) Shibpur which has provided me a strong and comprehensive background in environmental management. The curriculum included courses such as environmental engineering, solid waste management, air pollution, water supply and sewage treatment.

My Under-Graduation final year project was “Biological Degradation of Different types of Plastic by Larvae of Tenebrio Molitor” under the supervision of Prof. Anirban Gupta, IIST Shibpur, which focused on the reduction of plastic pollution through biological degradation of plastics by using larvae of Tenebrio Molitors and then regression to determine the quantity of the larvae of Tenebrio Molitors required for degradation of plastics in a specific time was performed. The project was selected as the best Under-Graduate project of the department and for this, I earned the Professor Prabodh Chandra Mitra Memorial Award in 2019.

My ongoing Post Graduate thesis is “Environmental Impact Evaluation of Health-Care Waste Management Practices considering COVID-19 Pandemic”. This study utilizes the pandemic as a lens to investigate the HCW (Health-Care Waste) management systems based on field surveys and life cycle assessment. Firstly, field surveys were carried out that helped in assessing the existing HCW management systems, with a focus on HCW treatment and disposal facilities. Selected common bio-medical treatment facilities and hospitals helped to understand the change in quantity and the characteristics of HCW due to COVID-19. Further, a Life Cycle Assessment was performed to quantify potential environmental impacts of the emergency disposal of HCW. Overall, this study sets the stage for HCW management and environmental impact reduction related to HCW management during the COVID-19 pandemic by examining several facets of HCW management. The study also makes relevant policy recommendations to assist in the establishment of HCW infrastructure and holistic management of HCW for future pandemics. The proposal of the thesis as a conference proceeding has been accepted to present at 50th Urban Affairs Association Conference Washington, DC.

I am Teaching Assistant for the subject “Environmental and Natural Resource Driven Infrastructure Management” [ID60017].

After completing my undergraduate and postgraduate studies at the top universities of India, I would consider it my privilege to pursue this Joint Doctoral Program. I am confident that the exciting academic atmosphere and connection with distinguished researchers of both the universities will be extremely beneficial to my growth. Besides, I am convinced that I would be able to contribute positively to the ongoing research at both the universities.

After doing Masters from Interdisciplinary branch I have a fascination to learn about multi-objective optimization model that can find the best strategies to manage the plastics waste with minimum cost, emissions and material use. It will be interesting for me to apply learned theories to solve a real-world problem. I've opted to seek a PhD after much self-evaluation. This decision came naturally after careful consideration of my academic background, areas of interest, and eventual professional desire, which is to pursue a research career.

I read the supervising team's publications on waste management and commercial models to optimise waste management for this PhD topic, and found that my research interests are consistent with theirs. As a result, I am eager to work on this topic.

As a hardworking and passionate person, I believe in persistent commitment towards one's goals. In my experience, interest is just a precursor to the right motivation and excellence, which have to be developed over time with continuous and unwavering effort as well as eagerness to solve problems. So, having an opportunity to work at the expand my horizon of knowledge and interests and will help me in perfecting the skills necessary for me to grow as a researcher.

Overall, I possess the motivation, intellectual ability and preparation to do justice to this PhD program. I eagerly await the opportunity to work as a researcher under your all supervision.