It is with a great enthusiasm I apply for the PhD position in Multiscale Mechanical Modelling of Toughened Adhesive Joints in Large Composite Structures. As a highly motivated and experienced material engineer, I am confident that my skills and passion for this field will make me a strong asset to your team.

A keen desire to pursue Material Science and all Pakistan rank that placed me among top 10% out of 120,000 candidates in all GIK engineering entrance examination landed me in the country most reputable and prestigious Institute, and subsequently completed my Bachelor of Science in Material Engineering at GIK institute of science and technology with a 3.62 CGPA .I was also silver medalist of my department and on Dean’s Honors list for consecutive six times by securing 3.56, 3.77, 3.77, 3.89, 3.94 and 3.94 GPA respectively. Apart from this I was also awarded FATA merit scholarship of worth 600,000 PKR annually (5000 USD) based on academic performance. The curriculum here at GIK has equipped me with a strong foundation academically and has kindled in me a passion to chase challenges. The theory courses that I did were well complemented by a number of laboratory courses which have given me hands on experience in fundamental areas of Material Engineering such in an areas as diverse as Physical Metallurgy, Surface Engineering, Polymers and Composites, Ceramics and Glasses, Non-Destructive Testing, Characterization techniques like SEM, XRD,AFM, DSC, Nano-Indentation etc., as well as core Metallurgical Operations like Casting, Manufacturing processes, Iron and Steel Making, Extraction of Non Ferrous Metals.

In my undergrad, I further enrolled in an online course known as Graphene Science and Technology by Chalmers University of Technology on edX where I studied in detail about graphene’s properties and synthesis methods and Writing Scientific Papers and Making Presentations in English by Tsinghua University, China, on edX with the knowledge developed from these courses and my personal literature review, I successfully synthesized Graphene oxide. I have striven to perform well in the courses and have tried to gain as much as I could from them. But I feel what qualifies a good graduate student is his ability to perform independent research work. I had an opportunity to do a summer research internship in Bio-Composite lab at the prestigious GIK institute. My project was concentrated on the "Development of Graphene based nanocomposites as electrode materials for batteries and super capacitors ", under the supervision of Dr. Ramzan Abdul Karim. For analysis we used characterization techniques like XRD, FTIR and AFM etc. Due to combined efforts of my supervisor and me, Higher Education Commission (HEC), Pakistan came onboard and funded this project. Similarly, My Project Titled “Development and Characterization of Electro less Nickel-Phosphorous coating on Al-7075 for aerospace applications” was among the few best projects carried out in the Department, and the result promises to be at a level that one would usually associate with graduate work.

Throughout my studies, I have focused on understanding the mechanical properties of materials and their behavior under different conditions. I was particularly fascinated by the mechanics of composite materials, which led me to pursue a master’s degree in engineering with a focus on the mechanics of composite structures.

During my Master's program, I had the opportunity to work on a research project that involved the effect of natural ageing on structural analysis of viscoelastic materials under different loading conditions. This experience gave me a deep understanding of the mechanics of viscoelastic materials and how they behave under various loading conditions. I was also able to hone my skills in numerical simulation and modelling, which will be invaluable for the proposed PhD project.

The project proposed in the PhD position aligns perfectly with my research interests and expertise. The opportunity to work on the multiscale modelling of toughened adhesive joints in large composite structures is an exciting prospect for me. I am eager to contribute to this project and learn from the experts in the field. I believe that my strong foundation in mechanics, combined with my experience in numerical simulation and modelling, makes me an ideal candidate for this PhD position.

My hardworking nature, interpersonal skills, knack for coordination, and insatiable thirst for academic excellence consistently ranked me among the top 3% of my class throughout my undergraduate and postgraduate studies. I am confident that I have the necessary research, technical, interpersonal, communication skills and software skills (CREO, Pro-E, Solidworks, Abacus CAE, ANSYS, MATLAB and C++) needed to thrive on the academic rigor of the PhD program. I am eager to bring my knowledge and skills to your team and make a meaningful contribution to the project. I appreciate you for taking your time to look into my application and attached documents.