VFlowTech Pte Ltd
8 Cleantech loop, #06-62 Singapore 637145
info@vflowtech.com | www.vflowtech.com

Job Title:	**Industrial Postgraduate Programme (IPP) – Electrical Engineer (PhD Scholarship Opportunity)**
About Us:	VFlowTech Pte Ltd. is a leading manufacturer in the field of vanadium redox flow batteries (VRFB), dedicated to revolutionizing energy storage solutions for a sustainable future. Our commitment to innovation and excellence drives us to continuously push the boundaries of technology, making clean energy accessible and reliable.
Position Overview:	VFlowTech Pte Ltd. is pleased to announce a PhD scholarship opportunity for aspiring researchers interested in addressing a critical challenge in VRFB technology under the Industrial Postgraduate Programme (IPP). IPP is a fully funded PhD programme provided by the Singapore Economic Development Board (EDB) and Enterprise Singapore (EnterpriseSG). Admitted IPP trainee will be full-time employees of the company while pursuing full-time research programmes at NTU. This scholarship aims to support research efforts focused on identifying and implementing effective strategies to mitigate shunt currents and various other losses and enhance the reliability and efficiency of VRFBs.
Description of the project:	Flow battery uses battery stack modules (5 kW range for VFT), which are connected in series for power scale up. The number of stacks connected in series in one string can vary from 4 to 12. However, due to having electrolyte supplied from the single tank, shunt current can significantly reduce the system efficiency and stack life. There are various approaches used in the industry to minimize the problem but there is no preferred solution and the methods are not easily available. Therefore, this project will focus on modelling the shunt current leakage in flow batteries and developing methods for reducing or eliminating the shut leakage. In this multi-year research, the candidate will develop several shunt models and experimentally estimate the losses. Ultimately, few solutions will be developed based on this R&D effort and implemented in larger-scale products.
Role Responsibilities:	• Conduct comprehensive research to understand the mechanisms and effects of shunt currents and other losses in flow batteries. • Investigate various approaches to mitigate such losses, including but not limited to design modifications, materials selection, and control strategies. It will be required to study this developing a electrochemical modelling of the battery system. • Design and conduct experiments to validate proposed mitigation techniques and assess their effectiveness. • Collaborate with interdisciplinary teams of engineers, scientists, and industry partners to integrate research findings into practical solutions. • Publish research findings in peer-reviewed journals and present at conferences to contribute to the advancement of VRFB technology. • Support other engineering tasks as required.

Requirements:	• Bachelor/Master's degree in Mechanical Engineering, Materials Science, chemical engineering or a related field. • Background in electrochemistry, energy storage systems, and fluid dynamics. • Familiarity with battery testing and characterization techniques is advantageous. • Proficiency in modelling and simulation tools such as COMSOL Multiphysics or ANSYS Fluent. • Excellent analytical and problem-solving skills. • Effective communication skills and the ability to collaborate in a multidisciplinary team environment.
Perks of the Program:	• Full tuition fee coverage for PhD program at a leading university. • Generous monthly stipend to support living expenses during the scholarship period. • Access to state-of-the-art research facilities and resources at VFlowTech Pte Ltd. • Mentorship from experienced Professors and industry experts. • Opportunity for career advancement and professional development within VFlowTech Pte Ltd. upon completion of PhD program. • Entitled to full-time employee benefits under VFT and CPF will be paid accordingly.
Why Join VFT:	• We offer exciting work in a fast-growing technology start-up. Our company is situated in Singapore (heart of Asia) with one of the finest infrastructure & low personal income tax rates. • We offer our employees excellent working conditions, and numerous opportunities for development. • Our team is diverse, multi-cultural and shares the drive to make a difference and create change. • We encourage our team to bring in their ideas and take initiatives that make them proud of. • We foster a rapidly scaling working environment with a very entrepreneurial, innovative, and collaborative culture. • We see the opportunities, where others see problems
Equal Opportunity Employer Motto:	VFlowTech is an equal opportunity employer. All qualified applicants for employment with VFlowTech will receive consideration for employment without regard to race, sex, age, colour, religion, marital status, sexual orientation, gender identity, veteran status, status with regard to public assistance, source of income, national origin, citizenship status, disability, or any protected status