Prof. Ziauddin Shaikh Ahammad
Department of Biochemical Engineering and Biotechnologv

Prof. S. Wazed Ali
Department of Textile and Fibre Engineering

Research Expertise

Water and wastewater, Bioremediation of emerging pollutants, Antibiotic resistance in the environment, Bioreactor design

Fabrication of nanocomposites based flexible electrodes to be used in microbial fuel cell for treating textile effluents and other industrial wastewater

Research Expertise

Eco-friendly/Green chemical processing of textiles, Nanotechnology in Functional materials (Polymers and textiles), Electro-active polymers and textiles

Rahul Kandpal
Research Scholar, SIRe
M.Tech Bio-Medical Engineering
B.Tech Biochemical Engineering

The proposed work is truly an interdisciplinary task where the expertise of the collaborators can be complementary. There are clearly two segments of the entire research work. Firstly, development of nanocomposites based flexible advanced materials for better electrode solution where textile dept under the supervision of Prof. SWA would play major role. On the other hand, devising the developed material in MFC in the biochemical reactor and the study the biodegradation of the effluents would be done under the supervision of Prof. SZA in DBEB.

Wastewater (industrial effluents, municipal waste) is a serious issue now-a-days where thousands of complex and toxic agents are being released into the natural water streams. The current technologies to treat this waste require toxic chemicals, intensive man power and energy which are not sustainable. Thus, there is a stringent need to develop an alternate technology which must be more efficient, economical and environmentally benign. Microbial fuel cells (MFC) are sustainable and green energy sources that can convert chemical energy in organic wastes into electricity and integrate environmental bioremediation with power production. However, the technology is associated with certain disadvantages such as low power densities, expensive metals electrodes, lower efficiency, etc. but with an huge white space for improvement to make it viable solution. The aim of the proposed project is to check the feasibility of treating wastewater containing using low energy MFC system and to further improve the performance of MFC by employing different strategies like new material solution for anode preparation.