

Wastewater Treatment Technologies

The Department has a strong cluster of researchers working towards improving the quality of water bodies that receive both storm water and sanitary water from cities and towns as well as wastewater from industry. The main focus of this group is on biological processes, such as, enhanced nutrient removal, electrochemical, and adsorption methods as well as advanced integrated oxidation processes, such as, ozone and photocatalysis, for the treatment of household and industrial wastewater. The development of the aforementioned technologies requires the design of compact bioreactors based on both fixed film processes, such as fluidized bed, and membrane bioreactors. Modeling and simulation also play a key role in this area of research, to enhance the prediction and design of various wastewater treatment processes.

The department houses three laboratories in this research area, which are well equipped with modern technologies. The research is also supported by the university central analytical laboratory for chemical analyses. In addition, a new faculty member, who has joined our department recently, brings expertise in zeolite membrane technology. This tool has a great potential in wastewater treatment.

The research thrust in this area fits well within the university research priorities of *Energy, Sustainability and the Environment*. Some activities of researchers in this area also can be listed under the *Technical Innovation* and the *Entrepreneurship* themes.