

International Winter School- Manipal University Jaipur [IWSMUJ]-2023



[Offline Mode]

Project Overview

Name of Project: Macroporous monolithic adsorbents for removal of dyes from aqueous solutions

Name of Mentor: Dr. Anees Y. Khan

Session: Jan.-Feb. 2023

Language of instruction: English

Number of contact hours: 75

Credit awarded: 03

Objectives of the project

Removal of dyes from aqueous solution is important for water conservation, its re-use and environmental safety. In the proposed work, a monolithic adsorbent will be made based on ice-templating approach to remove dyes from their aqueous solutions. Adsorption isotherm will be generated to know the maximum dye removal capacity of the adsorbent.

The objectives of the work are as follows:

1. To synthesize macroporous monoliths for adsorption studies
2. To perform batch studies for removal of dyes from aqueous solutions.

Organization of the project

Total contact hrs 75		
1 st week:	20 hrs (Lab work)	Task 1: Synthesis of macroporous monoliths Task 2: Literature review (will continue till the end of the project)
2 nd week:	20 hrs (Lab work)	Task 3: Batch adsorption studies: Kinetic studies where removal of dye from aqueous solutions will be recorded as a function of time and equilibrium time will be obtained. Task 4: Midterm exam will be in the form of a presentation
3 rd and 4 th week:	35 hrs (Lab work)	Task 5: Batch adsorption studies: Isotherm studies where dye removal capacity of the adsorbent will be studied with respect to different initial dye concentrations at equilibrium and temperature. Task 6: End term exam will be in the form of a presentation

Mode of conduction of the project: **Offline**

Brief profile of the instructor



Dr. Anees Y. Khan is working as associate professor and head of the department of Chemical Engineering at Manipal University Jaipur (MUJ). He did his masters in chemical engineering from Birla Institute of Technology and Science (BITS) Pilani (India) and PhD from Indian Institute of Technology (IIT) Bombay (India). He focused on mesoporous silica for applications in biosensing, and catalysis during his PhD. Post PhD he worked in National Chemical Laboratory Pune (India) as Research Associate on monolithic materials. He has established Porous Materials Laboratory at MUJ where he is focusing on making a wide range of porous materials for water treatment and healthcare applications.

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