

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher** : Greeshma Nair
- **User Type** : [☒] Ph.D. Scholar [] Postdoctoral Researcher [] Bachelor's [] Masters
- **Institution Name** : SAL COLLEGE OF ENGINEERING
- **Institutional Contact No:** 079-67129000
- **Research Topic** : MODELLING AND SIMULATION OF ELECTROOXIDATION OF INDUSTRIAL WASTEWATER

Software Request Details

- **Software Name:** COMSOL MULTIPHYSICS
- **Justification for Software Request:** The use of **COMSOL Multiphysics** in this study is justified by its ability to accurately simulate the complex interplay of electrochemical reactions, ionic transport, and mass transfer that govern electrooxidation processes in industrial wastewater treatment. Its Multiphysics framework allows the seamless coupling of reaction kinetics with species transport and electric field distribution, enabling predictive modeling of pollutant degradation and energy consumption under varying operational conditions. By providing a virtual platform to optimize parameters such as electrode configuration, current density, and reactor design, COMSOL reduces the reliance on costly and time-intensive experimental trials. Furthermore, its capability to visualize concentration profiles, potential distributions, and removal efficiencies aids in understanding the underlying mechanisms of electrooxidation, while its scalability ensures relevance for both laboratory and industrial-scale applications.
- **Guide/Supervisor Approval**
I, Dr. Bhavna Soni,
 - Confirm that the above-mentioned researcher is affiliated with our institution
 - Have reviewed the software request and its relevance to the researcher's academic work
 - Approve the software request for research purposes

Approval Confirmation

- I approve the software request
- The software aligns with the researcher's research objectives
- The request meets the institutional research guidelines

Guide/Supervisor Signature: Bhavna Soni

Date: 30/7/2025

Official Stamp/Seal:

