

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher:** **Kaki Samuel**
- **User Type:** [☒] Ph.D. Scholar [] Postdoctoral Researcher [] Bachelor's [] Masters
- **Institution Name** : Indian Institute of Technology Hyderabad.
- **Institutional Contact No:** _____
- **Research Topic:** Tunable Nanofibrous Depth Filters: Design and Application in Liquid Filtration.

Software Request Details

- **Software Name:** **COMSOL Multiphysics**
- **Justification for Software Request:**

The software supports my research by enabling simulation of fluid flow and nanoparticle transport through bacterial cellulose membranes. It allows prediction of key parameters such as permeability, pressure drop, and filtration efficiency using models like Darcy's law. By incorporating structural properties obtained from SEM and BET analysis, the simulations closely represent the actual membrane structure. This helps in validating experimental results and understanding the influence of modifications such as porogen addition and membrane stacking. Overall, the software aids in optimizing membrane design and reduces the need for extensive experimental trials.

Guide/Supervisor Approval

I, **Dr. Seetha N**, Associate Professor, Dept. of Civil Engineering, IIT Hyderabad.

- 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:



Date: 19 May 2026

Official Stamp/Seal:



Important Notes

1. This form must be signed and scanned
2. The scanned copy must be uploaded with the software request
3. Electronic signatures are acceptable if from an official institutional email