

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher:** MOHD RAFE ALI
- **User Type:** ☐ Ph.D. Scholar ☐ Postdoctoral Researcher ☐ Bachelor's ☒ Masters
- **Institution Name** : IIT MADRAS
- **Institutional Contact No:** 022 2257 4089
- **Research Topic:** ORGAN ON A CHIP – CANCER DRUG SCREENING

Software Request Details

- **Software Name:** COMSOL 6.0
- **Justification for Software Request:** [Provide detailed explanation of how the software supports your research objectives]

The research focuses on developing Organ on a chip technology – where biomolecules or tumoroids can be grown in micro channels and their biological activity can be monitored and studied with varying physical conditions. Another aim of the study is conducting drug viability tests on cancer cells. To accurately model these phenomena, the Multiphysics capacity of COMSOL is essential. While the CFD and microfluidics module will capture the flow physics pertaining to microfluidic channels, the polymer flow module will help us model situations involving non-Newtonian fluids. The particle tracing module is required to track the motion of cells within the channels at varying flow conditions. The chemical reaction module is necessary to model the reaction happening between cells and drugs and the materials library is requested for easy access to material properties. Due to the experimental nature of the work, the developed simulation model can be validated and will serve as a powerful tool for future studies in this critical area of healthcare.

Guide/Supervisor Approval

I, KIRAN RAJ M (Guide/Supervisor Name),

- 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: 30/09/2025

Official Stamp/Seal: [Space for Institutional Stamp]

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