

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher:** Abil Aniyan
- **User Type:** [☒] Ph.D. Scholar [☐] Postdoctoral Researcher [☐] Bachelor's [☐] Masters
- **Institution Name:** Indian Institute of Science, Bengaluru
- **Institutional Contact No:** 080-22932400
- **Research Topic:** Microfluidics

Software Request Details

- **Software Name:** COMSOL Multiphysics version 6.0
- **Justification for Software Request:** COMSOL Multiphysics is required to simulate two-phase flows involving active droplets in Newtonian and non-Newtonian fluids. Its finite element framework enables accurate modeling of fluid-structure interactions, allowing detailed analysis of rheological effects and microscale propulsion mechanisms. The software's ability to couple fluid dynamics, interfacial phenomena, and complex material behavior makes it ideal for studying droplet deformation and motion. Simulation results will also be used to validate experimental findings, supporting a comprehensive understanding of active matter systems.

Guide/Supervisor Approval

I, Dr. Shubhadeep Mandal (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:

Shubhadeep Mandal

Date: 10th June 2025

Dr. Shubhadeep Mandal
Assistant Professor

Official Stamp/Seal:

Department of Mechanical Engineering
Indian Institute of Science
Bengaluru - 560 012, INDIA

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