

I-STEM Software Request – Guide/HoD Approval Form

User Details

- **Name of Researcher/Faculty:** Dr. Nikhil Kumar C S
- **User Type:** ☐ Ph.D. Scholar ☐ Postdoctoral Researcher ☐ Bachelor's ☒ Masters ☒ Faculty
- **Institution Name :** National Institute of Technology Calicut
- **Institutional Contact No:** 0495-2286701
- **Research Topic:** Superconducting Quantum Devices

Software Request Details

- **Software Name:** COMSOL Multiphysics(Basic + Advanced Modules)
- **Justification for Software Request:** [Provide detailed explanation of how the software supports your research objectives] : The Time-Dependent Ginzburg–Landau (TDGL) equation provides a robust phenomenological framework to describe the spatiotemporal evolution of the superconducting order parameter under external electromagnetic fields. It captures essential non-equilibrium phenomena such as vortex nucleation, motion, and interaction, which are critical for understanding device-level behaviour. Coupled with Maxwell's equations, TDGL enables self-consistent modelling of superconducting dynamics. Its computational tractability and compatibility with finite element methods make it particularly suitable for implementation in **COMSOL Multiphysics**, allowing accurate simulation of realistic device geometries and experimentally observable quantities.
- **Guide/Supervisor/Head of Department Approval**

I, Prof. Sreelekha G(HoD),

- 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/Head of Department Signature: _____

Date: 24-03-26

Official Stamp/Seal: [Space for Institutional Stamp]

Important Notes



प्राध्यापक एवं विभागाध्यक्ष
Professor & Head
इलेक्ट्रॉनिक्स एवं संचार अभियांत्रिकी विभाग
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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