

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher:** SACHIN MEHAN
- **User Type:** ☐ Ph.D. Scholar ☐ Postdoctoral Researcher ☒ Bachelor's ☐ Masters
- **Institution Name:** GURU NANAK DEV UNIVERSITY
- **Institutional Contact No:** +91-183-2258802
- **Research Topic:** Lithium ion battery thermal management

Software Request Details

- **Software Name:** _COMSOL Multiphysics (**Basic + Advanced Modules**)
- **Justification for Software Request:** I am currently researching thermal management of lithium-ion batteries, under the guidance of Dr. Ravita Lamba at the Indian Institute of Technology Roorkee. My work focuses on examining the thermal behavior, heat dissipation, and structural stability of battery packs across varying operational conditions. For this, I am using COMSOL Multiphysics, which offers powerful tools for integrating heat transfer, fluid dynamics (CFD), and electrochemical processes within battery systems. The software also enables structural analysis to assess thermal expansion and mechanical stress—key factors in battery safety and design. Its modular design makes it possible to simulate real-life scenarios and explore optimized cooling methods such as phase change materials (PCMs), liquid cooling, and airflow techniques. As an early-stage researcher, I find COMSOL's intuitive interface and ready-to-use physics modules especially helpful for building and validating computational models aligned with my research goals.

Guide/Supervisor Approval

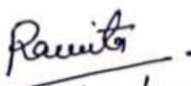
I, Dr. Ravita Lamba,

- 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:


27/06/2025

Date: 1/07/2025

रविता लाम्बा/Ravita Lamba
सहायक प्राध्यापक/Assistant Professor
जल एवं नवीकरणीय ऊर्जा विभाग
Dept. of Hydro and Renewable Energy
भा.प्रौ.सं. रुड़की/I.I.T. Roorkee
रुड़की/Roorkee-247667

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