

I-STEM Software Request - Guide Approval Form

User Details

- Name of Researcher: Bishnupriya Nayak
- User Type: ☐ Ph.D. Scholar ☐ Postdoctoral Researcher ☐ Bachelor's ☒ Masters
- Institution Name : National Institute of Technology Tiruchirappalli, Tamil Nadu
- Institutional Contact No: +91-431-2500133
- Research Topic: Superior energy storage capacity of bilayer composites

Software Request Details

- Software Name: COMSOL MULTIPHYSICS
- Justification for Software Request: COMSOL Multiphysics is a powerful simulation software that can significantly support my research project on the superior energy storage capacity of bilayer composites by enabling comprehensive Multiphysics modelling, including electrostatics, structural mechanics, and thermal effects. Through its user-friendly interface and physics-based modules, I can simulate the behaviours of dielectric bilayer materials under varying electric fields and mechanical loads, analyse polarization-electric field (P-E) loops, and evaluate energy density, efficiency, and breakdown strength. Further we can insert our SEM image to study grain and grain boundary behaviour under different electric field which will be helpful for our paper publication in SCIE journals. This allows me to study the interfacial effects, electric displacement continuity, and stress distribution within multilayer architectures, which are critical to optimizing energy storage performance. Additionally, COMSOL's ability to couple different physics domains helps in understanding the real-time coupling between electrical and mechanical responses in composite systems, thereby guiding the design of high-performance materials. Its customizable material database and parametric sweep tools further aid in evaluating various material combinations and geometrical configurations efficiently, ensuring that my experimental efforts are guided by informed theoretical insights.

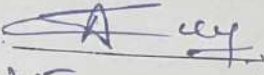
Guide/Supervisor Approval

I, Dr. ANNAPUREDDY VENKATESHWARLU (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: 4.08.2025

Official Stamp/Seal: [Space for Institutional Stamp]

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