

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher:** Antony Joseph
- **User Type:** ☐ Ph.D. Scholar
- **Institution Name** : Indian Institute of Technology, Palakkad
- **Institutional Contact No:** 04923 226 501
- **Research Topic:**
Thermal management of electronic devices with a focus on optimisation of heat sinks

Software Request Details

- **Software Name:** COMSOL (Basic + Advanced Modules)
- **Justification for Software Request:**

Efficient thermal management plays a critical role in enhancing the performance and reliability of modern electronic and electrical systems. Despite significant advancements in design and functionality, overheating remains a major challenge, often leading to reduced efficiency, performance degradation, and potential component failure. Therefore, effective heat management strategies are essential to ensure system longevity and optimal operation.

Phase change materials (PCMs) have gained considerable research interest due to their high latent heat storage capacity and other favourable thermal characteristics. Their integration into cooling systems offers a promising pathway to address heat accumulation in next-generation devices.

Globally, the optimization of heat sinks for electronic components and thermal management systems for batteries has emerged as a highly competitive and impactful research domain. COMSOL software has a very good Optimization module and has the capability to incorporate various physics in the same problem. For Thermal management of electronic and battery, Heat transfer module, CFD module, Battery design module, AC/DC module will be indispensable. To import various design into the COMSOL we will require the CAD import module too.

So, to summarize, for learning how to do the various techniques in COMSOL, I will require the following modules:

1. Heat Transfer Module
2. Optimization Module
3. AC/DC Module
4. Battery Design Module
5. CFD Module
6. CAD Import Module

With reference to the above subject, I would like to request you for the license for the above-mentioned modules of the COMSOL.

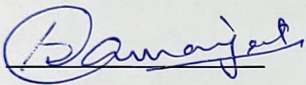
Guide/Supervisor Approval

I, **Dr. Samarjeet Chanda** (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: 03/12/25

Official Stamp/Seal:

डॉ. समरजीत चंदा / Dr. Samarjeet Chanda
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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