

I-STEM Software Request - Guide Approval Form

User Details

- **Name of Researcher:** Nishchal Shiva Sai Chandra
- **User Type:** ☐ Ph.D. Scholar ☐ Postdoctoral Researcher ☐ Bachelor's ☒ Masters
- **Institution Name:** M S Ramaiah University Of Applied Sciences
- **Institutional Contact No:** 080 4906 5555
- **Research Topic:** Nanoelectronics and Nano-photonics

Software Request Details

- **Software Name:** COMSOL Multiphysics
- **Justification for Software Request:**

COMSOL Multiphysics is an essential simulation software for my research in the field of **Nanoelectronics and Nanophotonics**. My research involves the design, modeling, and analysis of nanoscale electronic and photonic devices, where accurate multiphysics simulations are critical for understanding device behaviour before fabrication.

The software provides an integrated environment to simulate coupled physical phenomena such as semiconductor transport, electromagnetic wave propagation, heat transfer, electrostatics, structural mechanics, and optical interactions. These capabilities are particularly important for analyzing advanced nanoelectronic devices such as **MOSFETs, FinFETs, GAAFETs, TFETs, and nanowire transistors**, as well as nanophotonic components including **optical waveguides, photonic crystals, plasmonic structures, optical resonators, and integrated photonic devices**.

COMSOL enables the optimization of device geometry, material properties, and operating conditions through finite element analysis (FEA), reducing the need for costly and time-consuming experimental prototyping. It also supports the investigation of novel materials such as **graphene, MoS₂, carbon nanotubes (CNTs), and other two-dimensional (2D) materials**, which are widely used in next-generation nanoelectronic and nanophotonic applications.

The software will significantly enhance my research by providing high-accuracy simulations, visualization of electric and optical field distributions, thermal effects, carrier transport characteristics, and device performance under different operating conditions. These capabilities are essential for validating theoretical models, improving device efficiency, and producing high-quality research outcomes suitable for publication in reputed journals and conferences.

Therefore, access to COMSOL Multiphysics is necessary to effectively carry out my research in **Nanoelectronics and Nanophotonics** and to achieve the objectives of my M.Tech research work.

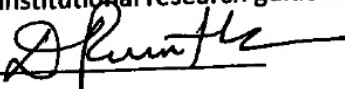
Guide/Supervisor Approval

I, Dr. D. Punithavathi (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: 7/8/26

Official Stamp/Seal: [Space for Institutional Stamp]

Prof. Punithavathi Duraiswamy PhD
Department of Electronics and Communication Engineering
M.S. Ramaiah University of Applied Sciences
Bengaluru, Karnataka - 560 058, 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