

I-STEM Software Request - Guide Approval Form

User Details

- Name of Researcher: BHANUPRATAP SINGH RATHI
- User Type: ☐ Ph.D. Scholar ☐ Postdoctoral Researcher ☒ Bachelor's ☐ Masters
- Institution Name: INDIAN INSTITUTE OF TECHNOLOGY, DELHI
- Institutional Contact No: +91 7838108 283
- Research Topic: INTEGRATED PHOTONICS

Software Request Details

- Software Name: COMSOL MULTIPHYSICS
- Justification for Software Request: [Provide detailed explanation of how the software supports your research objectives] ✱

Guide/Supervisor Approval

1. Deepak Jain (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: Deepak Jain

Date: 07/02/2026

Official Stamp/Seal: [Space for Institutional Stamp]

Important Notes

- This form must be signed and scanned
- The scanned copy must be uploaded with the software request
- Electronic signatures are acceptable if from an official institutional email

Justification:

* The research includes simulation of photonic components like directional couplers, resonators, etc. to optimize the output. The project explores the conceptual design and theoretical development of a photonic matrix processor for AI applications.

Circuit level design and simulation needs to be performed, using COMSOL Multiphysics software, to directly perform computations in the optical domain.

Studying photonic computing architecture, matrix vector multiplication using photonic circuit and algorithm hardware co design concepts.

The goal is to make and validate photonic circuit architectures for growing industry demands.

प्रो. दीपक जैन / Prof. Deepak Jain
सह. प्रोफेसर / Associate Professor
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