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To:  
**The Head of Department**  
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Maalgudi TechnoLabs is a student-led and student-driven organization that focuses on '**Learning Through Knowledge Sharing**'. We are committed to promoting technological innovation and education. We are writing to propose a Skill Lab session, in collaboration with Architecture and System Design Lab, Dept. of ECE, RVCE, on Embedded Systems using FPGA.

As per our previous discussions with the faculty(ies) in-charge of the lab, we from Maalgudi TechnoLabs will be responsible for delivering the session and its contents, and the hardware resource (FPGA) required for the session will be delivered by the Lab.

This session integrates theoretical as well as practical knowledge on FPGAs, specifically the Xilinx Zynq-7000 series. The theoretical and practical aspects of the session are as below

**Theory:**

1. Introduction to FPGA
2. History of FPGA
3. FPGA applications
4. FPGA design flow
5. FPGA architecture
6. CPU vs FPGA - when to use CPU and when to use FPGA
7. Introduction to hardcore and softcore processors and touching upon Microblaze and Zynq SoC by Xilinx
8. Detailed discussion on Xilinx Zynq 7000 FPGA series and Zynq 7 SoC
9. Introduction to AXI protocol

**Practical (Hands-on):**

- Block Design in Vivado Using Zynq-7000 PS
- Working with Constraint Files
- Synthesis and Bitstream Generation
- Exporting Hardware as XSA Files
- Embedded C Programming for FPGA
- Demonstration of Project

This Skill Lab session will provide participants with both theoretical knowledge and hands-on experience in embedded systems using FPGAs, with a focus on the Xilinx Zynq-7000 series. The session will cover essential concepts such as FPGA design flow, architecture, and the AXI protocol, along with practical applications like block design and embedded C programming. We look forward to collaborating with the Architecture and System Design Lab to successfully deliver this session and enhance the participants' skills.

Thank you for considering our proposal. We are eager to contribute to the growth and development of your students.

**Regards,**

A handwritten signature in purple ink that reads "Pratham G".

**Pratham Gowtham**  
CEO Maalgudi Technolabs LLP