Department of Electrical and Electronics Engineering
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

Date: 12 March 2025

Ref. No.: NITK/E&E/2023-21/A16 dated 19/01/2023

Advertisement for Summer Internship

Applications are invited for the position of Summer Internship in a research and development project **(SERB-EEQ**) with the following details:

Title of the project: "Sophisticated Optimised DC-DC Converter for Charging Electric Vehicle Using Reliable GaN devices and Planar Magnetics"

Principal Investigator:

Dr. R. Kalpana,
Associate Professor, Department of Electrical and Electronics Engineering,
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Name of the position: Summer Internship

No. of Positions/Vacancies: One

Qualifications:
Essential Qualifications: - Candidate studying in final year **M.E/M.Tech Power Electronics, Power & Energy Systems, Power Electronics Control in Electric Vehicle** with a minimum of 75% aggregate score (7.5/10 CGPA).

Desired Skills: -

- MATLAB/Simulink and Ansys.
- Experience in development of power electronics hardware.

Age Limit: 25 years (Preferable)

Salary: Rs. 5,000/month

Duration: 2 Months

How to apply: Interested candidates must apply with the following documents (1) Cover letter (2) Bio-data with a passport-sized photograph, (3) Scanned copies of educational certificates and mark sheets in the google form. **https://forms.gle/xctJyTG5foPt9gTy7**

Last date for applying: 20 March 2025. Only shortlisted candidates will be intimated by email and called for a **Personal interview**. The position is available immediately. The appointment will be on a purely temporary basis co-terminus with the project.

About the project:

Total duration: 3 YEARS (2023-2026)
Funding Agency: Science & Engineering Research Board (SERB)

Project summary:
Electric Vehicles (EVs) are receiving widespread attention around the world due to their improvedperformance and zero carbon emissions. The effectiveness of electric vehicles depends on proper interfacing between energy storage systems and power electronics converters. However, it is observedthat in EVs the power delivered by energy storage systems are unstable, unregulated and substantial voltage drops. The on-board DC–DC converter in electric vehicles (EVs) is used to connect the high- voltage battery with the low-voltage auxiliary system. With the advancement of auxiliary equipment inEVs, the output current of the DC–DC converter can be hundreds of amperes, which will cause high- conduction loss and severe thermal concern. To overcome these limitations, electric vehicle converters,controllers and modulation schemes are necessary to achieve a secured and reliable power transfer fromenergy storage systems to the electric motor. Further, the accuracy of the power battery model and SOCestimation directly affects the vehicle energy management control strategy and the performance of the electric vehicle, which is of great significance to the efficient management of the battery and improvement of reliability of the vehicle. Therefore, there is a significant need for low cost and high reliability power converters for the EVs advancing charging mechanisms, which is the primary interfacebetween the power system and the EV- battery system.
