

A Brief report on
FACULTY SUMMER INTERNSHIP IN ELECTRICAL DEPT. AT IIT HYDERABAD
Held during 10TH -30TH June, 2018

Sponsored by: TEQIP-III Project, IIT Hyderabad

Faculty summer internship under twinning agreement between mentor institute IIT Hyderabad and mentee institute ABVGIET Pragatinagar, Shimla was done with the help of TEQIP-III project. And was organized in the Electrical Department of IIT Hyderabad during 10th -30th June, 2018. The nominated faculty Er. Sandeep Thakur, Assistant Professor in Dept. of ECE and was supervised by Dr. Gajendranath Chowdary, Assistant Professor in Dept. of Electrical Engineering IIT Hyderabad. The expenditure on this internship in IIT Hyderabad was borne by TEQIP-III project of IIT Hyderabad.

The objective of the summer internship program was to provide an exposure about research to design an optimized low power boost converter for body sensor node using FinFET. To fulfill the objective, the work has been carried in analog laboratory on cadence tool along with new FinFET technology at 18 nm scale. The schematic for low power boost converter was designed to achieve low power consumption along with higher efficiency. To execute the objective, firstly an LC oscillator is designed using cross coupled transistor configuration. Secondly, to achieve more optimized results, dynamic threshold technique is used for body biasing in oscillator and charge pump circuit using FinFET technology. These aforesaid schematic techniques result in attaining the low threshold voltage which further helps to achieve low power consumption along with higher efficiency. The undertaken research work has provided the clear understanding in depth. Different simulations has been performed on boost converter design to achieve the outputs. These analyses include DC, transient, pss analysis etc. Also, an exposure has been given about the VLSI layout design. So, this work may be extended further in future with its layout design.

Additionally, this summer internship program also motivated the faculty to share the experience of this research program in mentee institute ABVGIET Pragatinagar, Shimla. It will help in creating a new avenues of research activities for faculty and students in mentee institute.