

Science Right: IISc Press Release

India ESD Workshop (IEW): Bridging the Gap between Industry and Academia

The Indian technology industry has been facing a challenge in bridging the gap between academia and the industry to have skilled people on the job. VLSI design is one such niche area which suffers from the lack of employable VLSI design engineers. With around 75,000 employment opportunities generated by the end of 2015, the demand for VLSI specialists is expected to grow exponentially over the next 5 years. However, the current academic environment/framework is unable to bridge this gap by itself. Finishing schools, symposiums and workshops are some of the means of achieving this.

As a testimony to this, the Department of Electronic Systems Engineering (ESE) at the Indian Institute of Science, Bangalore, conducted the 1st India ESD Workshop (IEW) on February 16, 2016. It was hosted by Prof. Mayank Shrivastava, a renowned nanoelectronics Professor at IISc and attended by students and industry representatives.

Integrated Circuits (ICs) are a backbone component to any electronic systems and as such systems get smaller, there is an ever-increasing focus on the miniaturization of ICs. Many research initiatives are in place in India to address this need; however, there is a serious lack of expertise in India as far such niche areas are concerns. To address this, Prof. Shrivastava initiated the concept of the “India ESD forum” back in 2015. “Maximum IC failures happen because of ESD (electrostatic discharge) issues and improper ESD design. To address this, India needs a knowledge base and expertise on ESD related R&D, which is largely missing today. Therefore, this forum was established with the aim of increasing R&D awareness, improving the knowledge base and triggering ESD related research within Indian semiconductor industry”, says Prof. Shrivastava.

The forum has grown since then with over 63 senior level engineers and technical managers from various VLSI design companies across India, as members. The forum aims to provide a platform for the engineers and academicians in solving ESD design problems with miniaturized ICs. The 1st India ESD Workshop organized by the forum is a wave in the direction of cementing the academia-industry relationship. In describing the motivation behind the forum’s workshop, Prof. Shrivastava stated - “The current focus of the forum is ESD device and circuit design. However, the idea behind this workshop is to come up with a model to strengthen Indian industry by improving their knowledge base in this field and motivate them for R&D. Once a model is established, it can be deployed to other areas of semiconductor manufacturing for the benefit of the overall eco-system.”

The workshop held in February 2016, was very well received by the Indian VLSI community and saw the participation of 33 professionals from various industry giants like SanDisk, Intel, GlobalFoundries, NXP, Cadence, Infineon, and Synopsys. Several students and 3 faculty members from IISc joined them. In-depth technical discussions on various aspects of ESD design guidelines, its robustness, and ESD protection strategies were a prime attraction of the workshop.

The workshop also had international participation through interactive teleconferencing sessions. Renowned experts in the fields like Dr. Harald Gossner (Intel, Germany) and Dr. Charvaka Duvvury (ex-Texas Instruments Fellow, USA) provided practical insights to various ESD design problems.

The well-received success of this workshop is an example of how academia and industry can work hand-in-hand to address challenges in various fields. “In my opinion, if India wishes to be a future leader in electronics manufacturing, it needs to take necessary steps towards development of facilities, expertise, manpower, knowhow, IP and industrial networks. These can help lead the subject from academic level research to the industry level integration and its eventual commercialization. However, this cannot happen overnight. In this direction, such interactions help industry to strengthen their knowledge base, which will also symbiotically benefit Indian academia. Once such an eco-system is established, industry – academia interactions will benefit the local electronics manufacturing sector and the Indian economy, in the long run”, said Prof. Shrivastava. This is a path breaking approach by IISc and several institutes can get inspired with this initiative.

END

Prof. Mayank Shrivastava can be contacted via his group website (www.dese.iisc.ernet.in/people/mayank/) or via email at mayank@dese.iisc.ernet.in. Further information about the India ESD Forum and the upcoming editions of the IEW can be found from Prof. Shrivastava.