VLSI Design Centre

Very-large-scale integration (VLSI) is the process of creating integrated circuits by combining thousands of transistors into a single chip. India is one of the largest consumers of electronic goods, but is way behind in the field of VLSI design. Even though there are VLSI research centres in India, there are not many commercial VLSI foundries in India. Many corporates are not willing to invest in the VLSI area, due to the lack of quality VLSI professionals available here. The very few professionals who pass out of the IITs are immediately absorbed by the national as well as multi-national companies. The demand of VLSI professionals has been steadily increasing world-wide and it has been difficult to bridge the demand-supply gap. In India more than 125 companies are working in VLSI design area hence a huge need for skilled manpower.

Course Objective

The course is intended as a graduate degree program at the Masters level and introduces the student to the area of VLSI CAD. The larger objective of the course will be to make India a significant force in the VLSI field and to promote research in this area by setting up VLSI research centres in collaboration with Industry.

Course Details

The course will be a M. Tech/ME/MS programme in CAD for VLSI of four semester duration. The course will cover areas of

- Basic VLSI Design and Design flow
- CAD HDL languages like Verilog, VHDL etc
- Digital system design and testing of VLSI circuits
- Use of Commercial tools from Mentor Graphics, Cadence Complete Suit, FPGA Advantage, Modelsim, Leonardo Spectrum, HDL Designer, Synopsys, Magma
- Xilinx, Altera FPGA boards for practical lab sessions
- Final year of the programme to be dedicated to research in the many areas of Logic Synthesis and optimization, Placement and routing, mapping and floor-planner, simulation, timing analysis, Power estimation and analysis, configuration, architecture analysis, testing etc.
- Tie-up with Industry for training and placement
**Location**

Department of Electronics Government Engineering College Kannur located at Mangattuparamba, 15 km from Kannur Railway station. Effective utilization of linkage between the academic complex and a wide network of industrial units in the surroundings and excellent faculty will be an added advantage.

**Benefit to investors**

Basically collaboration should be sought from foreign universities, industries and institutions. By this collaboration industries will be having an advantage of promoting their products and software. Universities can conduct training programs and research programs in India where they are likely to get more attention and students. Universities can in the long run have combined courses and research programs which are well accepted in academic and industrial world.

**Role of the Government**

The government will be the major stake holder in this venture as the center will be under direct control of the government. The government shall provide initial funds necessary for providing the infrastructure and equipment. The government shall also take a leading role in taking decisions that will make cooperation of various academic institutions, universities and industries with the center for providing training, and running courses. This will strengthen the academic levels of institutions in Kerala and also open up new venues for industrial development in the state.

**Collaborations Possible**

MOU can be signed with corporate houses to support the course. Many commercial VLSI tool developers like Mentor Graphics will provide the leading-edge design tools for classroom instruction and academic research free of cost under the Higher Education Program (HEP). Xilinx and Altera will provide FPGA boards at Educational pricing. They will also assist in setting up research labs in the Institute. This will enable students to gain proficiency in VLSI design tools that are commercially used and make them ready for the industry.
Expected Expenditure: Rs 1 Crore

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