



NARAYANA ENGINEERING COLLEGE :: NELLORE

(AUTONOMOUS)



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

A Report of Online STTP on "Applications of Signal, Image And Video Processing in VLSI using Xilinx System Generator [Phase - I] "

Department of Electronics & Communication Engineering, Narayana Engineering College, Nellore, organized a "ONLINE STTP ON APPLICATIONS OF SINGAL, IMAGE AND VIDEO PROCESSING IN VLSI USING XLINX SYSTEM GNERATOR". The STTP was conducted on the following dates: 14 – 09 – 2020 to 19 – 09 – 2020. The total number of participants attended the faculty development program is 57. The purpose of this STTP is to bring together researchers & PG students from Academia and Engineers & Scientists from industry and R&D institutes to have discussions on the recent advances in Applications of signal, image & Video processing in VLSI using Xilinx System generator. High end image or video processing applications are easy to solve in MATLAB..

OBJECTIVES OF STTP:

- Providing a clear & thorough understanding on fundamental and application areas of signal processing in VLSI.
- Providing an in-depth knowledge in use of Xilinx system generator for VLSI Signal Processing applications.
- Providing example of advantages of high level design tool such as System Generator for FPGA design.
- Hands on experience on signal and Image processing algorithm synthesis & implementation in FPGA.
- Awareness of industrial applications of FPGA implementation.

The following members are the resource persons for the programme.

1. **Dr. Farukh Hashmi**, NIT Warangal
2. **Nagendra Bandi**, CoreEL Technologies
3. **Dr. P. Srihari Rao**, NIT Warangal
4. **Dr. P. Muralidhar**, NIT Warangal

The inaugural function of the workshop started with a welcome address by Dr. K Murali, HOD-ECE and he presented the theme of the STTP and said that applications of Signal, Image and Video processing in VLSI using Xilinx System Generator is playing an important role in various applications. Later, the Principal of NECN addressed the staff members and said that STTPs will help for the growth of the faculty in all facets of their professional lives. STTPs will provide resources which will help the faculty to develop as scholars, to publish and share at professional conferences, and to improve their performance in the class room.



Figure: Dr. K. S. Sagar Reddy explaining the glimpses of STTP

Mr. Nagendra Bandi, CoreEL Technologies addressed the participants about the following topics using laboratory:

1. Vivado Design Flow for Logic
2. Generating Bit – Stream and Programming Hardware
3. Designing System using DSP Blocks
4. Implementation of DSPs on Hardware.

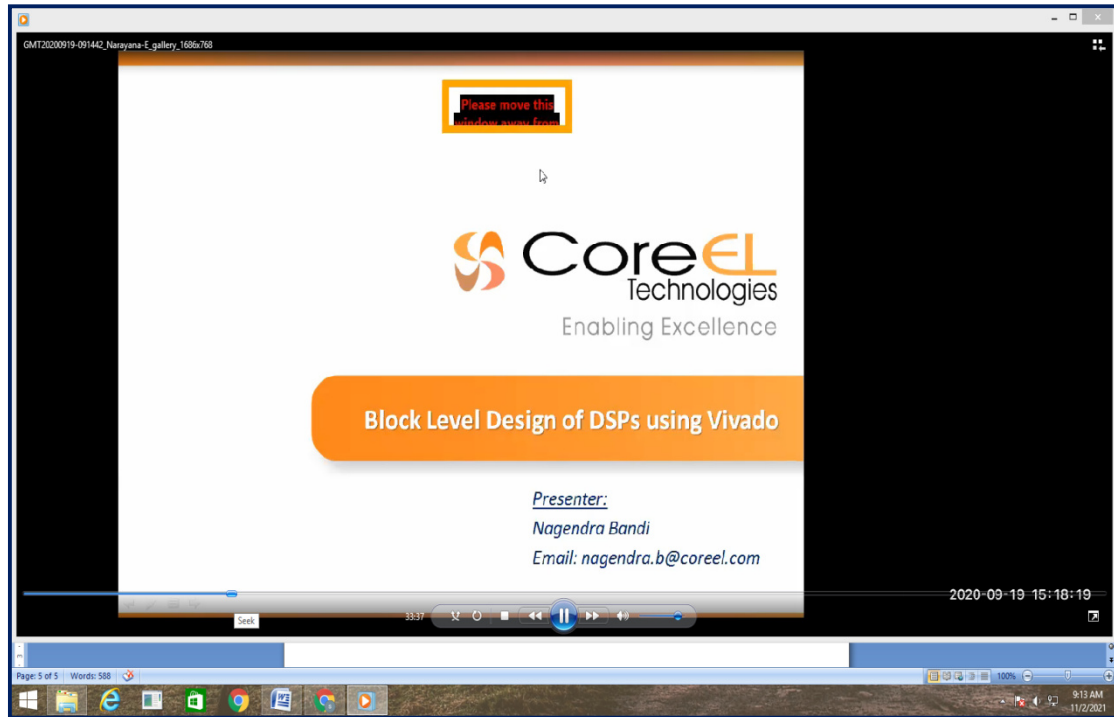


Figure: Resource Person explaining about Block Level Design of DSPs

Dr. P. Srihari Rao, NIT Warangal addressed the participants about the overview of VLSI DSP, and IC Design for VLSI Communication. He explained about the various research problems in VLSI DSP Algorithms. Finally, he discusses about the applications of VLSI DSP and IC Design and compare with the state of the art methods.

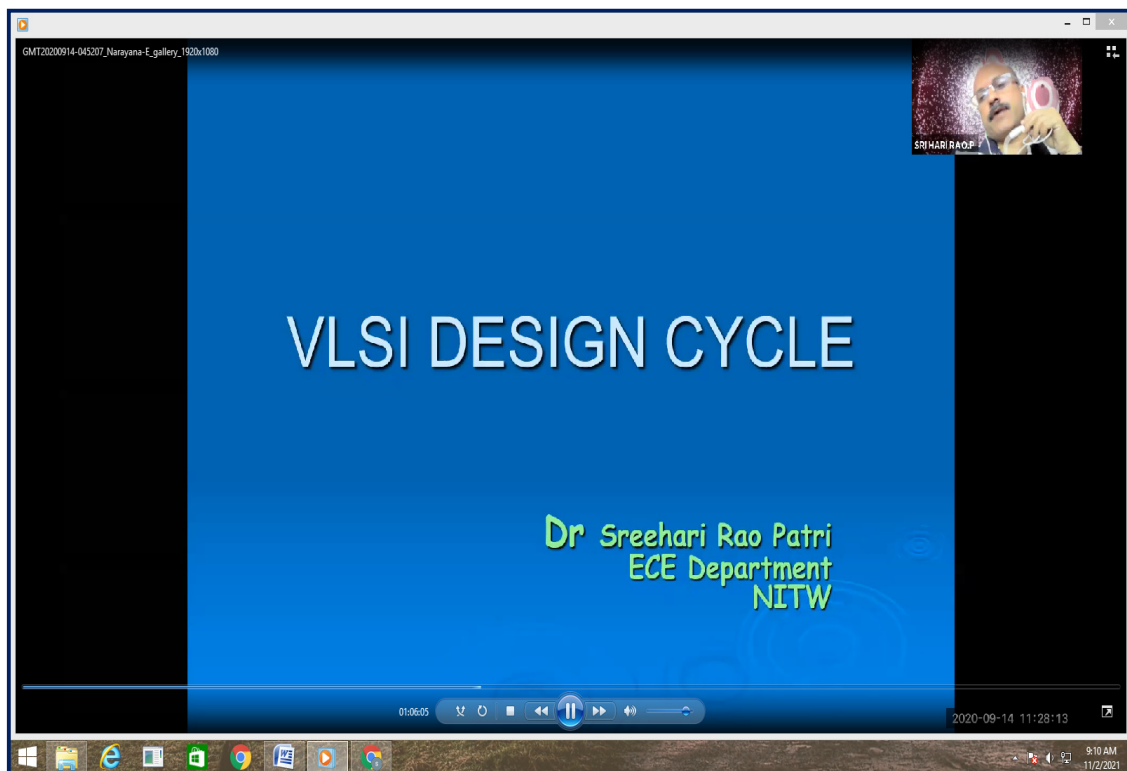
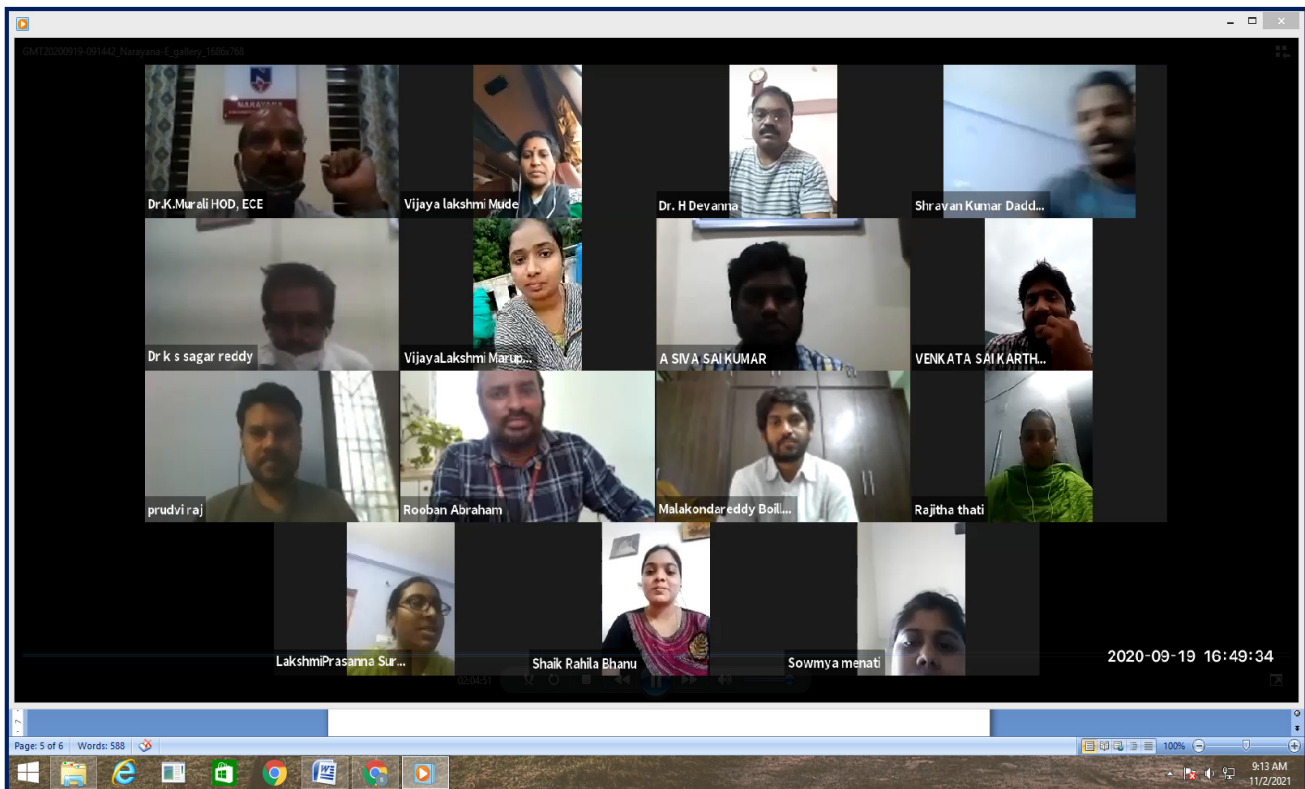


Figure: Resource Person explaining about VLSI Design Flow

Dr. Farukh Hashmi, NIT Warangal addressed the participants about the overview of signal processing methods, DSP Algorithms and Image Processing Algorithm. She discussed about the different architecture with example and finally, she discussed about the different application of signal, DSP and image processing.

Dr. P. Muralidhar, NIT Warangal addressed the participants about the following topics: FPGA Architecture and VLSI Architectures for Video Processing Algorithms. He addressed the various research problems in the applications of FPGA architecture in the video processing algorithms.



Expected outcomes:

- Opens new avenues for faculty members to pursue research in Application of signal, Image and Video Processing in VLSI using Xilinx System Generator.
- Detailed knowledge of DSP Architecture and Embedded Systems.
- Importance of VLSI using Xilinx System Generator in today's trends of life.