

Digital Systems Design - Winter 2025-2026

Simulations

- a. Perform extensive examples and explain how UART works. Instead of developing one, you may find open source, such as the following.

(https://repos.ecosyste.ms/hosts/GitHub/repositories/MohammadNiknam17%2FUART_Receiver_Transmitter_Controller_VHDL-FPGA)

- b. Develop and simulate a system where you connect a memory from which you will read all its contents and send them by using the UART above. You can find memory on the web as well.

(<https://github.com/uiuxarghya/PCC-CS492-CA/tree/main/RAM>)

Implementation

- c. Implement the full system on board and Optimize your design in terms of (i) area, of (ii) speed. Take care of proper configuration of UART for 9600bps, 115kbs.
- d. Try to connect two boards through your UART port / connection.

Report your detailed simulation results and discuss. Additionally, demonstration, and results of implemented system is needed.