**Boot camp for Digital Systems Education**

Thanks to a grant from the IEEE Computer Society for Emerging Technology, the Lone Star Section Computer Society Chapter is offering a FREE Boot Camp for Digital Systems Education.

Targeted at College, pre-college, high school and continuing education students, the Boot Camp is designed to provide a hands-on experience at programming a low-cost field-programmable gate array (FPGA) board, the heart of many consumer electronic systems.

The boot camps will be held at St. Mary’s University from 9 AM to 4 PM on two consecutive Saturdays. Lunch for participants will be provided. Boot Camp participates who attend both Saturday sessions keep their FPGA board.

The first Boot Camp was held Saturdays June 11 and June 18th. The second set of Boot Camps on June 25 and July 16. Additional Boot Camps will be scheduled as sufficient registrations occur.

Registration required. To register and for more information on the course and for pre-requests go to:

<https://events.vtools.ieee.org/m/320230>

Slide decks for the two classes are at:

<https://github.com/jimbrake/FPGA_Boot_Camp>

The Digital logic simulator with schematic capture and HDL generation is at:

<https://github.com/hneemann/Digital>

**Course Curriculum**

Day 1 (TBD):

* Install Digital logic simulator on a PC
* Install configuration files for FPGA board
* FPGA board background
* Logic simulator background
* Example circuits
* Draw logic circuits
* Operate logic circuits
* Generate RTL files for FPGA board
* Examine RTL files

Day 2 (One week later):

* Install Xilinx Vivado on a PC
* Vivado background
* RTL background
* Constraint file background
* Initialize project
* Load RTL and constraint files
* Compile, place and route
* Download to FPGA board
* Exercise design

At the end of day one student should be able to create and exercise a digital design of their choosing. At the end of day two the student should be able to exercise the digital design on the FPGA board. Proctors will be available to help with error messages, RTL syntax issues or other problems.

The purpose of the grant is to make FPGA education more available and affordable on a par with the Raspberry Pi or Arduino. It is an experiment. The Boot Camp is the first cut at a beginning FPGA (AKA modern digital systems) education with student ownership of the FPGA board. There is much to learn in this area. After the boot camp participants may continue learning on their own or attend additional classes. The FPGA board manufacture web site, RealDigital.org, contains course curriculum and education aids for 15-week digital logic course.