

Programmable logic popularity among the industry has increased due to its capability to shorten leadtime while also increasing design flexibility. This has led to the need for engineers with experience in programmable devices and hardware description languages such as VHDL. In response to this, many universities are introducing this topic into undergraduate engineering curricula; facing a number of logistical and didactical challenges. Programmable logic was introduced in the undergraduate curriculum at the University of New Mexico (UNM) in Fall 2000. For this purpose, a laboratory with programmable devices development boards was built and a series of laboratory exercises were developed. Our laboratories are built on Complex Programmable Logic Devices (CPLDs) and Field Programmable Gate Arrays (FPGA) devices. The laboratory exercises use the Xilinx ISE development environment. In order to provide the students with resources for better analysis and understanding of programmable logic designs, the labs also use other tools such as XPower, Floorplanner and Sysgen. This paper discusses the challenges that were faced, and how our experiences differ from previously reported similar efforts. It explains the process followed to select the software and hardware that best suited this task. It also compiles the laboratory exercises and explains how they address basic concepts learned on digital logic courses. All the developed material is currently freely available online.