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Prairie View A&M University

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- Digital Logic Circuits
Lab and CPU Architecture
Lab***

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The digital logic circuits laboratory provides students a hands-on opportunity to practice their knowledge learned in digital logic circuits design. It teaches the fundamental steps on computer engineering technology. Typical experiments performed in this lab are: Boolean algebra, DeMorgan's Theorem, design combinational and sequential logic using logic gates and flip flops, and trouble shooting with logic devices.



Besides various equipments such as logic gates, training board, we also use various software, such as MultiSim to simulate the circuit design.

Software Engineering Lab

The Software Engineering lab is equipped with 25 modern Personal Computers and 5 LED displays. Two major laboratory courses taught in this lab are i) *Assembly Language Programming*, and ii) *Software Applications of Microprocessors*. Besides, students who take Java programming course to supplement their Technical Elective requirements use this lab facility as well.

In Assembly Language laboratory course, the first four lab exercises are dedicated to give the students a unique opportunity of virtual tour inside the Registers of CPU and inside details of Memory of computers before they embark to writing programs in assembly language. In Software Applications of Microprocessors laboratory course, the students practice writing utility programs in Assembly



Two Students are trying to send text messaging to one LED display Using Assembly Language Programming

Language and mixed language programming. The lab activities include writing assembly language and mixed language programs to interface external elements, like LCD displays. They also concentrate on writing programs to communicate among personal computers via COMPorts and graphics programming including animations.

Microprocessor Lab

The Microprocessor laboratory is located in Room 208 of S. R. Collins Engineering Technology Building. The lab is equipped with 12 desk top computers, 12 oscilloscopes, 12 function generators, and different kinds of microprocessor simulation boards. Two major laboratory courses taught in this lab are i) Micro Peripheral Hardware Lab, and ii) Single Chip Microprocessor Lab.



Mixed Signals and DSP Solutions Lab

This new laboratory is equipped with test equipment and training boards for Mixed Signals and DSP solutions experiments. There are two laboratory courses in each area directly useful for both CPET and ELET majors. Mixed signals laboratories consist of measurements and testing of analog and mixed signal situations. The DSP solutions laboratories enable students to acquire skills to develop and program for DSP applications.



Circuits and Communication Lab

This laboratory is equipped with test equipment to conduct laboratory experiments in the area of DC circuits, AC circuits, Network Analysis, and Communication circuits. Students build various circuits on bread boards and carry out tests using latest electronic equipment. Students work in groups and are required to use computer programs to carry out simulations. Students achieve better understanding of these fundamental topics by comparing theory, experimental results and computer simulation results.



Electronics and Instrumentation Lab

This laboratory is equipped with latest test equipment useful to test various electronic devices, sensors, amplifiers and instrumentation systems. Typically measurements are carried out by the accessing data by a computer connected setup for each station. This facility is also available for students to test their senior project.



General Purpose Computing Lab

Twenty five computers of the latest model with software related to all courses taught in Engineering Technology programs are readily available in this laboratory for students to use any time. Students use this facility for homework preparations, project and simulation works and writing programs as needed by various courses.

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P.O. Box 519 . Prairie View, Texas . 77446-0519 Phone: (936) 261-9900