



Capital University of Science & Technology

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Visit Report of Industry Professional to CUST EE Department Labs

In response to the action tasks of particular Industrial Outreach Meeting of Dean ORIC with Dr. Muhammad Ashraf, convener EE Dept held on 8th May, 2019, Mr. Shakaib, CTO, Designx Solutions visited Capital University of Science and Technology, Islamabad on Monday 13th May, 2019 at 3 P.M.

Designx Solutions is an Electrical and Electronic based Manufacturing company located in Islamabad that works under following domains.

- Alternate Energy Solutions
- Backup Power Systems
- Engineering Services
- Electronics Design Services
- Power Conditioning

The objective of present visit was to show him CUST EE Department labs and seek suggestions about how we can upgrade our labs to meet modern day Industry requirements. This would help us in training our students according to technical skills in compliance with market requirements that would ultimately enhance employability chances of our students.

Prof. Aamer Iqbal Bhatti, Dean Research & Innovation, Dr. Muhammad Ashraf, Professor EE Department and Mr. Osama Akbar Raja, Lecturer EE Department welcomed the honorable guest.

Subsequently the honorable guest comprehensively visited the particular labs. The following Lab Engineers were present in their respective labs.

1. Mr. Attabik Tabib
2. Mr. Zeeshan Ahmad
3. Mr. Nadir Mehmood
4. Mr. Amir Hamza
5. Mr. Mudassar Hussain
6. Mr. Abu Turab
7. Mr. Muhammad Waleed Farooq

After a detailed visit followed by analysis of featured equipment, following key points emerged as recommendations for each lab.

Electronics Lab

1. Silicon Carbide based Insulated-Gate Bipolar Transistors (IGBTs) is the new technology, which may be used in Electronics lab.
2. Interleaving switching may be included in experiments of Electronic Circuit Design (ECD) lab.
3. Instead of conventional procedures, Step Craft PCB Routing Machine should be used which would not only reduce manual processes but also enhance quality and efficiency.

Analogue Electronics Lab

1. For the observation of cut off frequency of RC filters, Digital Oscilloscope may be used in the lab.

Digital Electronics Lab

1. Duty Cycles Changing Function Generators must be included in lab.
2. The theory of Universal Asynchronous Receiver Transmitter (UART) Design should be essentially taught to students in some course because for synchronization and asynchronization UART Design is used.
3. Serial Peripheral Interface (SPI) should also be taught in a theory course.
4. The specific Delta sigma Analogue to Digital Converters need to be taught in theory or lab course.

Microprocessor Lab

1. IAR Systems Compiler must be used which already have built in Keil Software along with other software packages.
2. The specific 8086 Intel Microprocessor can be replaced with better and more recent ARM Processor.
3. Real Time Operating System, Parallel Processing and Multitasking needs to be included in Lab course.

Control Systems Lab

1. The students should be assigned to implement PID in C language alongside MATLAB. This would lead towards better understanding of basic concepts to them.
2. Ball and Beam Balance Experiment may be done using Atmega Micro Controllers.
3. A new type of simple PLC Experiment can be designed in lab by filling rubber tyre with 50-60 psi compressor.

Communication Systems Lab

1. Software Defined Radio (SDR) theory should be taught in theory or lab course.
2. SDR can be implemented with GNU Radio software.

Details about Manufacturing Companies

Mr. Shakaib also recommended some high profile companies for purchasing electronics based products and equipment e.g. Taraz Tech for 3-phase devices and power modules. He also recommended a well reputed company Quanser for buying particular lab equipment.

Dr. Noor Muhammad Khan, HoD EE dept also visited the guest. Dean Research & Innovation, Prof. Aamer Iqbal Bhatti, Dr. Muhammad Ashraf and HoD EE Dept thanked the worthy guest for his valuable feedback and recommendations. Mr. Shakaib desired to visit and collaborate with CUST in future also.

Prepared by

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Approved by:

Prof. Aamer Iqbal Bhatti
Dean Research & Innovation

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- Mr. Osama Akbar Raja, Lecturer EE Dept.
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