



Lab Card

Lab Number
ENP-S-03-B1-023

Laboratory Type	Computer Architecture Lab		مختبر بناء الكمبيوتر
Building	South Building – 3 rd Floor		
Capacity	21 hp PCs + 1 Instructor PC - 215.8 Area (m2)		
Equipment (Furniture – Appliances)	1	The laboratory is equipped with: ▪ Extron Control Touch Panel- for speaker & ceiling camera ▪ Projector & display curtain ▪ Digital ceiling Camera	
	2	▪ 21PCs are equipped with: Windows10 Enterprise, OS, MS Office 365 software, antivirus programs, Vision, Adobe, 7-Zip, PyCharm Community Edition, Python, VLC Media Player, Eclipse for JAVA, MATLAB, Visual Studio 2019, CUDA tool kit, Quartus 13.1, Voice Recorder, Mixed Reality Portal, Paint 3d, & Safe Exam Browser. ▪ The laboratory is equipped with electricity sockets & network points connected to the internal network of Kuwait University.	
	3	▪ Instructor Table & Chair ▪ Island Pinch Shelving + Wall Shelving ▪ 21 Table & 24 Chairs ▪ 10 long black table ▪ 1 Small Black Network Cabinet ▪ Wall Cabinets + drawers ▪ White board	
	4	▪ Good ventilation & proper lighting in the laboratory. ▪ Suitable temperature for summer and winter climates. ▪ The presence of curtains to prevent sunlight from entering the laboratory to maintain the devices. ▪ The presence of the display screen in a suitable place for the teacher and students	
Computers Status	Model: Intel(R) Core (TM) i7-8700 CPU @ 3.20GHz, 3192 Mhz, 6 Core(s) Memory: 16 GB RAM		
	Printer: Kyocera ECOSYS P3260DN		
Accommodation for people of determination	▪ The availability of the necessary spaces that allow the disabled to move and see clearly. ▪ Doors open outward		
Safety & Security	▪ Doors open outward with electronic card system. 2 Doors ▪ Fire-fighting equipment inside the laboratory: Fire Extinguisher, Fire Blanket & First Aid Kit. ▪ Evacuation Plan: Presence of safety guidelines to evacuate the plant in the event of a fire. ▪ Wiring extensions are safe and do not pose a risk to students. ▪ Smoke Alarm		
Laboratory Uses	▪ Computer Architecture Laboratory, CpE-469		
Officials	Dana Mubarak, Hanadi Al-Rashidi & Armando Vegiga		
Awareness & Guidance	The presence of instructions for correct use & instructions to maintain laboratory equipment		

- The Safety & Security Dept. Emergency Line (ext. 3333, direct line 24893333) operates 24hours a day, including Fridays & public holidays.
- The Medical CpE Clinic -South Building, Ground Floor- operates for 12 hours daily- 24983455
- Call/WhatsApp Helpdesk: 24984444 to report an issue / malfunction.

This laboratory serves the Computer Architecture (CpE-469) course where students would use the Altera Quartus CAD tool to design, implement, and simulate both single-cycle and pipelined RISC-V data paths. Furthermore, students implement and test a forwarding and hazard detection unit for the pipelined RISC-V data path. The lab also introduces GPU programming using CUDA C, where students utilize shared memory to optimize memory usage and apply parallel programming to image processing. Currently, the experiments are being revised to include additional topics, such as parallel computing patterns, including prefix sum and parallel histogram.

يخدم هذا المختبر مقرر هندسة الكمبيوتر (CpE-469) حيث يمكن للطلاب استخدام أداة Altera Quartus CAD لتصميم وتنفيذ ومحاكاة مسارات بيانات RISC-V أحادية الدورة وخطوط الأنابيب. علاوة على ذلك، يقوم الطلاب بتنفيذ واختبار وحدة إعادة التوجيه والكشف عن المخاطر لمسار بيانات RISC-V المائبة. يقدم المختبر أيضا برمجة GPU باستخدام CUDA C، حيث يستخدم الطلاب الذاكرة المشتركة لتحسين استخدام الذاكرة وتطبيق البرمجة المتوازية على معالجة الصور. كما سيتم تنقيح التجارب لتشمل مواضيع إضافية، مثل أنماط الحوسبة المتوازية، بما في ذلك مجموع البادئة والرسم البياني المتوازي.



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