# MicroprosserII LABROTARY

| No. | Device | Specification | Uses | Picture |
| --- | --- | --- | --- | --- |
| 1 | **PC PARALLEL PORT** | PC parallel port-bread board interface | Interfaces any device connected with breadboard (motor, led's, 7- segments, etc…) to pc parallel port, And drive it by computer software. | DSC04360.JPG |
| 2 | **AC-DC power Supply** | - Two variable power supply  - Two fixed power supplies (+5v,-5V). | Used to supply DC voltage to different electronic and electrical circuits. | H:\Photos\DSC02272.JPG |
| 3 | **Dc power Supply** | - Maximum voltage 30VOLTS. | Used to supply DC voltage to different electronic and electrical circuits. | H:\Photos\New folder\DSC05057.JPG |
| 4 | **Stepper Motor** |  | It is interfaced with circuits that drive a stepper motor. | H:\Photos\DSC02284.JPG |
| 4 | **Relay** |  | It is interfaced with circuits that drive a relay. | H:\Photos\DSC02286.JPG |
| 5 | **Seven segment** |  | It is interfaced with circuits that drives a 7- segments display. | H:\Photos\DSC02287.JPG |
| 6 | **Dip switch** |  | It is used as a binary input device. | H:\Photos\DSC02288.JPG |

# Microprocessor II Laboratory

| No. | Device | Specification | Uses | Picture |
| --- | --- | --- | --- | --- |
| 1 | **NV5586A (kit)** | -the NV5586A is a single board microprocessor training development kit configured around Intel's 16 bit microprocessor 8086. It is designed to operate in maximum mod . Co processor 8087 and I/O processor 8089 can be added on board.  -The kit communicates with outside world through an IBM PC compatible keyboard with 20x2 LCD display . The kit has the capacity of interfacing with PC NV5586A is Packed up with powerful monitor Program in 128KB of factory programmed EPROMS and 32KB of read/write memory. The total memory on the board is 160KB. The system has 72 programmable I/O lines. The serial I/O communication is made possible through 8251. For control applications three 16 bit timer/counters are availabe through 8253. For real time applications the 8 levels of interrupt are provided through 8259. NV5586A provides on board battery back up for on board RAM. | - NV5586A helps students understand the theoretical material.  -it is used to train engineers to control any industrial process and to develop software for 8086 system. | H:\Photos\DSC02278.JPG |
| 2 | **IM01** | Digital Input-output Module | Connects Simple input-output device to NV5586A kit | DSC05038.JPG |
| 3 | **IM03** | 8\*8 LED Matrix Display Module | Connect 8\*8 LED Matrix to NV5586A (kit) | DSC05038.JPG |
| 4 | **IM05** | 5\*4 Matrix Keyboard Modules. | Connects 5\*4 Matrix Keyboard to NV5586Akit | DSC05038.JPG |
| 5 | **IM07** | 16\*2 LCD Display Module | Connects 16\*2 LCD Display to NV5586Akit | DSC05038.JPG |
| 6 | **IM08** | Stepper Motor Controller Module | Connect Stepper Motor to NV5586A kit | DSC05038.JPG |
| 7 | **IM12** | DC Motor Controller Module | Connects DC Motor to NV5586A kit | H:\Photos\DSC02281.JPG |
| 8 | **IM13** | Traffic Light Controller Module. | Connects Traffic Light Controller to NV5586A kit | DSC05038.JPG |
| 9 | **IM14** | Temperature Measurement Module | Connects Temperature Measurement Sensor to NV5586A kit | DSC05038.JPG |
| 10 | **IM16** | Elevator Simulator Module. | Connects Elevator Simulator to NV5586A kit | DSC05038.JPG |
| 11 | **EM04** | 8251 Programmable Communication Interface study Module. | Connects 8251 IC to NV5586A kit | DSC05038.JPG |

# Computer & Control LABROTARY

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| --- | --- | --- | --- | --- |
| No. | Device | Specification | Uses | Picture |
| 1 | **EASY PIC7 DEVELOPMENT BOARD** | - This board can be powered in three different ways :  (With USB power Supply, using External adapter, or additional screw terminals).  - Support UART (universal asynchronous receiver /transmitter) via RS-232  - Support UART (universal asynchronous receiver /transmitter) via USB  Displays :  - LCD 2\*16 characters  - GLCD 128\*64  -Touch panel controller  - 4 digit 7-segment display. | The Easy development system is an extraordinary development tool suitable for programming and experimenting with PIC microcontrollers from MICROCHIP. You are simply expected to write a code in some compiler, generate a .hex file and program your microcontroller using the PIC flash programmer.  - Allows you to easily simulate the operation of the target device. | H:\Photos\DSC02271.JPG |
| 2 | **EASY PIC6 DEVELOPMENT BOARD** | - This board can be powered in two different ways :  (With USB power Supply, using External adapter)  -Support UART (universal asynchronous receiver /transmitter) via RS-232  - Support UART (universal asynchronous receiver /transmitter) via USB .  Displays :  -LCD 2\*16 characters  - GLCD 128\*64  -Touch panel controller  - 4 digit 7-segment display. | The Easy development system is an extraordinary development tool suitable for programming and experimenting with PIC microcontrollers from MICROCHIP. You are simply expected to write a code in some compiler, generate a .hex file and program your microcontroller using the PIC flash programmer. Allows you to easily simulate the operation of the target device. | easy pic6.JPG |
| 3 | **LCD** | Liquid Crystal Display | - 2\*16 character in 4 bit mode  - Can be used to represent standard and custom characters in the predefined number of fields | H:\Photos\DSC02290.JPG |
| 4 | **GLCD** | Graphical Liquid Crystal Displays. | -128X64 pixels-can be used to display monochromatic graphical content such as text, images, human machine interfaces and other contents. | H:\Photos\DSC02291.JPG |

# Network Laboratory

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| --- | --- | --- | --- | --- |
| No. | Device | Specification | Uses | Picture |
| 1 | **COMPUTER SYSTEM** | Manufacturer Dell©Processor Intel® Core™i3 CPU@3.30GHz  RAM: 4.00 GB  Windows version: Windows 7 Ultimate 64-bit  Hard Capacity: 500 GB | Used for (Network Lab, Java Lab, IT Lab, MATLAB Lab, Data Base Lab ) | E:\ست هناء\DSC05082.JPG |
| 2 | **ROUTER** | Cisco switch 2900 | Device that connects LAN network with another LAN network outside the scope, so that each host in one network can communicate with host in different network. | H:\Photos\New folder\DSC05067.JPG |
| 3 | **SWITCH** | Cisco switch 2900 | Connects the internal network computers together so that each computer is enabled to communicate with other computers within a local area network (LAN). | H:\Photos\New folder\DSC05065.JPG |
| 4 | **IP phone** | Cisco IP phone 7940. | Used in voice over IP network. | H:\Photos\New folder\DSC05073.JPG |
| 5 | **TP link wireless Router** | -Up to 300 Mbps  -4 port switch | Used to combine wire/wireless network connection integrated with internet-sharing router. | H:\DCIM\101MSDCF\DSC05087.JPG |
| 6 | **TP-Link (TL-wa801ND) Wireless access point** | - Up to 300 Mbps  - 2 Detachable Antennas RP-SMA connector. | Used to establish or expand a scalable high-speed wireless network. | H:\Photos\New folder\DSC05058.JPG |
| 7 | **TP-Link(TL-WA5110G) Wireless access point** | -Up to 54 Mbps. -1 Detachable Antenna RP-SMA connector. | Used to establish or expand a scalable wireless network. | H:\Photos\New folder\DSC05059.JPG |
| 8 | **Air live Wireless access point** | -5\*10/100 Mbps port.  - 20 dBm output power.  -8 wireless Operation modes. | Used to establish or expand a scalable wireless network. | E:\ست هناء\DSC05084.JPG |
| 9 | **TP-Link USB Adapter** | 150 Mbps | Used to connect PC with wireless network. | H:\Photos\New folder\DSC05060.JPG |
| 10 | **PCI network adapter** | Up to 2000Mbps data rate. | Used to connect PC with wired network. | H:\Photos\New folder\DSC05070.JPG |

**Computer WORKSHOP LABROTARY**

| No. | Device | Specification | Uses | Picture |
| --- | --- | --- | --- | --- |
| **1** | **COMPUTER SYSTEM** |  | **In which the student learns the parts of the computer and its components and the usefulness of each part and how to assemble parts and installed with the most important programs, and to identify the minor mistakes and problems faced by the user and how to deal with it, and learn how to connect devices with each other through a simple network and to identify the devices to configure the core network.** | DSC04450.JPGDSC04450.JPG |

**LOGIC LABROTARY**

| No. | Device | Specification | Uses | Picture |
| --- | --- | --- | --- | --- |
| **1** | **LOGIC KIT** | **The available number of kits is 11 in this lab.** | **This laboratory is a basic and major in first class of the Computer Engineering Department and represents the principal block for the design and construction of the digital circuits that have active role in various practical applications of modern digital systems. The laboratory consists of a set of experiments that are performed on special (Logic Kit) in which the students recognize the following: -**  **1 –Analysis and study of the operation of the different logic gates. 2 - Evaluation and implementation of various digital logic circuits 3 - Study and evaluation of arithmetic and logical circuits 4 –study, analysis and design of synchronized and non-synchronized circuits. 5 –study, analysis and design of the storage and shifting units.** | DSC04443.JPGDSC04443.JPG |

**ELECTRONIC & communication LABROTARY**

| No. | Device | Specification | Uses | Picture |
| --- | --- | --- | --- | --- |
| **1** | **Function generator model 4011** | **5MH, 120/230V, 15WATT.** | **Used to generate different waveforms (sine, triangular, square, and pulse) with a frequency range from 1 Hz - 5 Mega Hz and amplitude (peak-to-peak) between 200mv-20v.** | DSC04343.JPG |
| **2** | **DIGITAL STORAGE COLOR Oscilloscope** | **- Line Voltage 220V. -Frequency range 45/ 440Hz.**  **- Power max 50 VA.** | **Display the waveforms with color LCD screen, two channels of bandwidth 25 MHZ . And USB host interface.** | DSC04343.JPG |
| **3** | **DC POWER SUPPLY (DIGITAL)** |  | **Used to supply voltages ranging from 0- 30 volts. It has two screens to display the voltages (may be used separately or together)** | DSC04343.JPG |
| **4** | **MULTIMETER (VICTOR / VC8901)** |  | **Used for measuring signals (currents, or voltages) either d.c or a.c . Also it is used to measure resistance and capacitor values in-addition to other measurements.** | DSC04343.JPG |
| **5** | **DIGITAL FUNCTION GENERATOR** | **AC 220V/110V FREQUENCY 50 HZ/60HZ WITH 8 DIGIT LED DISPLAY** | **A device that generates sine-wave , TTL level square – wave frequency range 1 HZ/ 3MHZ and voltage from 10mvpp\_16 vpp**  **It can provide amplitude modulation with modulation depth**  **1%-100%** | DSC04343.JPG |
| **6** | **RESISTORS** |  | **Variable resistors (BOX) with values ​​(from 0.1 ohm to 1 kilo ohm or 100 ohm to 10 Mega ohms).** | DSC04343.JPG |
| **7** | **CAPACITORS** |  | **Variable type (BOX) gives values from (0.001-1 micro farad )** | DSC04343.JPG |
| **8** | **COILS** |  | **Variable (BOX) values ​​of (1 - 10 Henry).** | DSC04343.JPG |
| **9** | **Bread board** |  | **Is a tool to connect the circuit through the holes aligned in the form of columns and rows, and then connects these circuits to other devices for the purpose of displaying the input and the output of the circuits.** | DSC04343.JPG |

**DIGITAL SYSTEM DESIGN LABROTARY**

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| No. | Device | Specification | Uses | Picture |
| 1 | **FPGA Kit DE0** | * Altera Cyclone® III 3C16 FPGA device * 8-Mbyte SDRAM * 4-Mbyte Flash memory | Field programmable gate array (FPGA)used for applications such as   * ASIC prototyping * Digital system * Hardware acceleration |  |
| 2 | **FPGA Kit DE2-115** | * Altera Cyclone® IV 4CE115 FPGA device * 2MB SRAM * Two 64MB SDRAM * 8MB Flash memory * 2 Gigabit Ethernet PHY with RJ45 connectors * USB Host/Slave Controller with USB type A and type B connectors * IR Receiver * One High Speed Mezzanine Card (HSMC) connector | Used for applications such as   * ASIC prototyping * Digital system * Image processing * Hardware acceleration |  |

**أسماء المختبرات في قسم هندسة الحاسبات**

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| --- | --- | --- | --- |
| **أسم المختبر بالانكليزي** | **أسم المختبر بالعربي** | **المرحلة** | **ت** |
| Electrical circuit lab | مختبر دوائر كهربائية | المرحلة الاولى | 1 |
| Electronics lab | مختبر الكترونيك | المرحلة الاولى | 2 |
| Fundamentals of digital systems | مختبر اساسيات النظم الرقمية | المرحلة الاولى | 3 |
| Fundamentals of computer system | مختبر اساسيات نظام الحاسوب | المرحلة الاولى | 4 |
| Programming lab | مختبر البرمجة | المرحلة الاولى | 5 |
| Electronics lab | مختبر الكترونيك | المرحلة الثانية | 6 |
| Data structure lab | مختبر هياكل البيانات | المرحلة الثانية | 7 |
| Digital systems design lab | مختبر تصميم النظم الرقمية | المرحلة الثانية | 8 |
| Communications lab | مختبر اتصالات | المرحلة الثانية | 9 |
| Microprocessors lab | مختبر المعالج الدقيق | المرحلة الثانية | 10 |
| Communications lab | مختبر اتصالات | المرحلة الثالثة | 11 |
| Electronics lab | مختبر الكترونيك | المرحلة الثالثة | 12 |
| Operating systems lab (java) | مختبر نظم التشغيل (java) | المرحلة الثالثة | 13 |
| Microprocessors lab | مختبر المعالج الدقيق | المرحلة الثالثة | 14 |
| Database lab | مختبر قواعد البيانات | المرحلة الثالثة | 15 |
| Internet technology lab | مختبر تكنلوجيا الانترنت | المرحلة الرابعة | 16 |
| Control lab | مختبر السيطرة | المرحلة الرابعة | 17 |
| Microcontroller lab | مختبر المسيطر الدقيق (microcontroller) | المرحلة الرابعة | 18 |
| Network lab | مختبر الشبكات | المرحلة الرابعة | 19 |