



**Cleveland State University**  
**Electrical and Computer Engineering Department (ECE)**

**General Instructional Labs**

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**Communications & Electronics Lab (Lab 311)**



**FH311** is the CSU Communications & Electronics Lab. It houses the following resources:

- **12 HP Compaq 8200 Elite Convertible Minitowers**
  - ❖ **Operating System:** Windows 7 Professional 64-bit SP1
  - ❖ **CPU:** Intel Core i5 2500 @ 3.30GHz  
Sandy Bridge 32nm Technology
  - ❖ **RAM:** 4.00GB Dual-Channel DDR3 @ 665MHz (9-9-9-24)
  - ❖ **Motherboard:** Hewlett-Packard 1494 (SOCKET 0)
  - ❖ **Graphics:** 12 HP LA2006 Monitors (1600x900@60Hz)  
512MB ATI AMD Radeon HD 6350 (HP)
  - ❖ **Storage:** 465GB Seagate ST3500413AS ATA Device (SATA)
  - ❖ **Optical Drives:** HP DVD-RAM GH80N ATA Device
  - ❖ **Audio:** High Definition Audio Device (Speakers)
  - ❖ **Computers Warranty:**
    - *Base warranty:* HP HW maintenance onsite support (**Start:** Jan 17, 2012 - **End:** Feb 12, 2015)
    - *HP Care Pack:* HWM onsite (**Start:** Jan 16, 2012 - **End:** Feb 09, 2016)
- Room-length chalkboards

- First Aid Kit Laboratory (For up to 25 people)
- XEROX Phaser 3600-N **Printer**
- 3M 9050 Overhead **Projector**
- Available Software:
  - ❖ Microsoft Office 2010
  - ❖ Orcad family Release 9.2 lite Edition
  - ❖ ORCAD 16.5 lite
  - ❖ SystemView V6.0 (Network Seats: 25)
  - ❖ Agilent Data Capture Application

This facility is generally available 24 hours a day to all ECE major Undergraduate and Graduate Students and all students taking an EEC Class taught by CSU faculty and needed for the major. However, note that specific courses may reserve exclusive use of the facility during scheduled times. Check with your instructor for details. An active ID card is required for entry at all times, and for building entry at night and on weekends.

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### Digital Systems Laboratory (Lab 309)



**FH309** is the CSU Digital Systems Lab. It houses the following resources:

- **9 HP Compaq 8200 Elite Convertible Minitowers**
  - ❖ **Operating System:** Windows 7 Professional 32-bit SP1
  - ❖ **CPU:** Intel Core 2 Quad Q9505S @ 2.83GHz  
Yorkfield 45nm Technology

- ❖ **RAM:** 8.00GB Dual-Channel DDR3 @ 531MHz (7-7-7-20)
- ❖ **Motherboard:** Hewlett-Packard 3647h (XU1 PROCESSOR)
- ❖ **Graphics:** 18 HP LE2201w Monitors (1680x1050@59Hz)  
512MB NVIDIA GeForce 310 (NVIDIA)
- ❖ **Storage:** 931GB SAMSUNG HD103SJ ATA Device (SATA)
- ❖ **Optical Drives:** HP BD-RE BH30L ATA Device
- ❖ **Audio:** High Definition Audio Device (Speakers)
- ❖ **Computers Warranty:**
  - HP HW maintenance onsite support (**Start:** Jan 17, 2012 - **End:** Feb 12, 2015)
- Room-length chalkboards
- First Aid Kit Laboratory (For up to 25 people)
- XEROX Phaser 3600-N **Printer**
- Infocus **Projector**
- 3M 9050 Overhead Projector
- Available Software:
  - ❖ Altera Quartus II 10.1 SP1
  - ❖ Microsoft Office 2007
  - ❖ Modelsim SE 10.0a
  - ❖ Precision Synthesis 2010 a.218

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## Computer Networks & Distributed Systems Lab (Lab 306)



**FH306** is the CSU Computer Networks & Distributed Systems Lab. It houses the following resources:

- **13 HP Compaq Elite 8300 Small Form Factor Computers**  
29 total Computers
  - ❖ **Operating System:** Windows 7 Professional 64-bit SP1
  - ❖ **CPU:** Intel Core i7 3770 @ 3.40GHz  
Ivy Bridge 22nm Technology
  - ❖ **RAM:** 4.00GB Single-Channel DDR3 @ 798MHz (11-11-11-28)
  - ❖ **Motherboard:** Hewlett-Packard 3397 (SOCKET 0)
  - ❖ **Graphics:** PX2230MW Monitor (1920x1080@60Hz)  
Intel HD Graphics 4000 (HP)
  - ❖ **Storage:** 465GB Western Digital WDC WD5000AAKX-60U6AA0 (SATA)
  - ❖ **Optical Drives:** HP DVD-RAM GH82N
  - ❖ **Audio:** High Definition Audio Device (Speakers)
- **8 Uninterruptable Power Supply (Back UPS XS 1500)**
- **First Aid Kit Laboratory (For up to 25 people)**
- **Optoma Pro160s Projector**
- **Available Software:**
  - ❖ Altera Quartus II 13.1
  - ❖ Cisco Packet Tracer
  - ❖ Oracle VM VirtualBox
  - ❖ Microsoft Office 2010
  - ❖ Microsoft SQL Server 2008
  - ❖ Microsoft Visual Studio 2010

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### Software Engineering Lab (Lab 324)



**FH324** is the CSU Software Engineering Lab. This Lab houses the following resources:

- **16 Mac Mini6,1 Computers**
  - ❖ **Operating System:** Mac Based
  - ❖ **CPU:** Intel Core i5 @ 2.50 GHz
  - ❖ **RAM:** 4.00GB Dual-Channel DDR3 @ 665MHz (9-9-9-24)  
L2 Cache: 256 KB  
L3 Cache: 3 MB
  - ❖ **Graphics:** 16 HP LA2206 Monitor (1920x1080@60Hz)  
Intel HD Graphics 4000
  - ❖ **Audio:** Intel High Definition Audio Device (Speakers, HDMI/ Display port Output)
- First Aid Kit Laboratory (For up to 25 people)
- HP LaserJet 4250/4350 Series **Printer**
- Infocus **Projector**
- 3M 9050 Overhead Projector

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## Control Systems Lab (Lab 325)



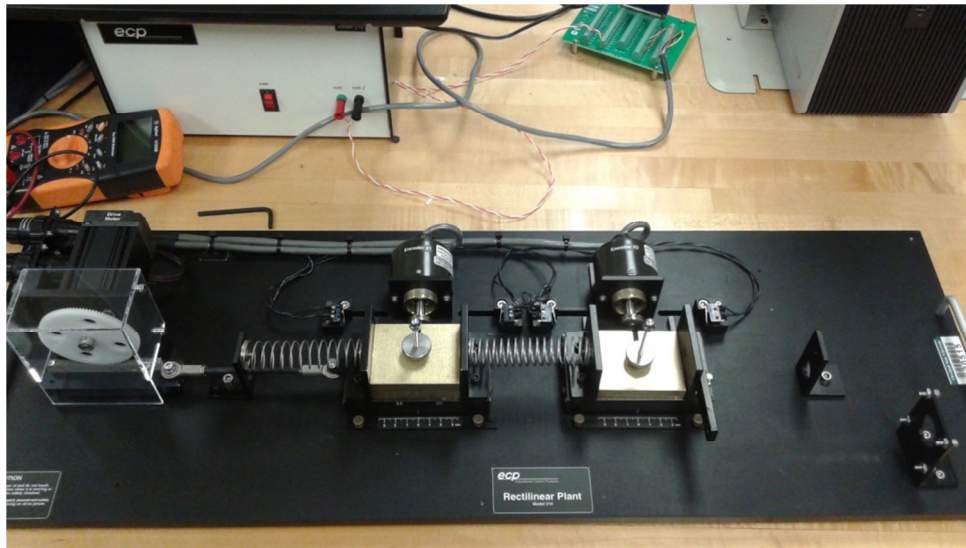
FH325 is the CSU Control Systems Lab. It houses the following resources:

- 7 HP Compaq dc7900 Convertible Minitowers
  - ❖ **Operating System:** Windows 7 Professional 32-bit SP1
  - ❖ **CPU:** Intel Core 2 Duo E8400 @ 3.00GHz  
Wolfdale 45nm Technology
  - ❖ **RAM:** 8.00GB Dual-Channel DDR2 @ 398MHz (6-6-6-18)
  - ❖ **Motherboard:** Hewlett-Packard 3032h (XU1 PROCESSOR)
  - ❖ **Graphics:** 7 FPD1730 (1280x1024@60Hz)  
256MB NVIDIA Quadro NVS 290 (NVIDIA)
  - ❖ **Storage:** 465GB Hitachi HDP725050GLA360 ATA Device (SATA)
  - ❖ **Optical Drives:** HL-DT-ST DVD-RAM GH40L ATA Device
  - ❖ **Audio:** High Definition Audio Device (Speakers)
- 5 Dell Vostro 220 n-Series
  - ❖ **Operating System:** Windows 7 Professional 32-bit SP1
  - ❖ **CPU:** Intel Core 2 Duo E7400 @ 2.80GHz  
Wolfdale 45nm Technology
  - ❖ **RAM:** 2.00GB Dual-Channel DDR2 @ 398MHz (6-6-6-18)
  - ❖ **Motherboard:** Dell Inc. 0P301D (Socket 775)
  - ❖ **Graphics:** 5 FPD1730 (1280x1024@60Hz)  
Intel G45/G43 Express Chipset (Dell)
  - ❖ **Storage:** 232GB Western Digital WDC WD2500AAJS-75M0A0 ATA Device (SATA)
  - ❖ **Optical Drives:** Optiarc DVD+-RW AD-7200S ATA Device

- Room-length chalkboards
- First Aid Kit Laboratory (For up to 25 people)
- Epson Power Lite **Projector**
- 3M 9050 Overhead **Projector**
- Available Software:
  - ❖ Microsoft Office 2010
  - ❖ MATLAB 2013b
- Available Educational Control Systems:
  - ❖ 5 Torsional plant ( Model 205), **ecp** (educational control products))
  - ❖ 1 Industrial Emulator (Model 220, **ecp**)
  - ❖ 1 Rectilinear Plant (Model 210, **ecp**)
  - ❖ 7 Servo Amplifier (Model 210, **ecp**)
  - ❖ Multi-Tank System (MTS)
  - ❖ Flow Pressure Testbed
- Other Equipment:
  - ❖ 11 Digital Multi Meter (177 MicroVolt DMM)
  - ❖ 9 Lin/Log 5Mhz Sweep Generator (WAVETEK Model 185)
  - ❖ 4 Servo Amp/Power Supply
  - ❖ 4 50Mhz Oscilloscope (Tektronix Model 2225)



**Torsional plant**



**Rectilinear Plant**



**Flow Pressure Testbed**





**Multi-Tank System**

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**Power System Lab (Lab 037)**



This is the CSU Power System Lab. This Lab houses the following resources:

- **5 HP Z220 Convertible Minitowers Workstation**
  - ❖ **Operating System:** Windows 7 Professional 64-bit SP1
  - ❖ **CPU:** Intel Core i7 3770 @ 3.40GHz  
Ivy Bridge 22nm Technology
  - ❖ **RAM:** 8.00GB Dual-Channel DDR3 @ 798MHz (11-11-11-28)
  - ❖ **Motherboard:** Hewlett-Packard 1790 (SOCKET 0)
  - ❖ **Graphics:** 9 FPD1765 (1280x1024@60Hz)  
1023MB NVIDIA Quadro 600 (HP)
  - ❖ **Storage:** 931GB Seagate ST1000DM003-1CH162 (SATA)
  - ❖ **Optical Drives:** HP BD B DH8B2SHB
  - ❖ **Audio:** High Definition Audio Device (Speakers)
- First Aid Kit Laboratory (For up to 25 people)
- Available Software:
  - ❖ Microsoft Office 2010
  - ❖ ORCAD 16.5 lite
  - ❖ Python 2.7.5
  - ❖ MATLAB R2013b
  - ❖ dSPACE Control Desk 5.1
- Other Equipment:
  - ❖ 4 dSPACE Controller
  - ❖ 5 DC-Power Supply
  - ❖ Solar/Wind Energy Training System
  - ❖ 3 Training Benchmarks (Lab-Volt)



**Training Benchmarks (Lab-Volt)**



**Solar/Wind Energy Training System**

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## Senior Design Lab (Lab 348)



**FH348** is the CSU Senior Design Lab. It houses the following resources:

- **10 HP Compaq dc7800 Convertible Minitowers**
    - ❖ **Operating System:** Windows XP
    - ❖ **CPU:** Intel Core 2 Duo E8400 @ 3.00GHz  
Wolfdale 45nm Technology
    - ❖ **RAM:** 8.00GB Dual-Channel DDR2 @ 398MHz (6-6-6-18)
    - ❖ **Motherboard:** Hewlett-Packard 3032h (XU1 PROCESSOR)
    - ❖ **Graphics:** 7 FPD1730 (1280x1024@60Hz)  
256MB NVIDIA Quadro NVS 290 (NVIDIA)
    - ❖ **Storage:** 465GB Hitachi HDP725050GLA360 ATA Device (SATA)
    - ❖ **Optical Drives:** HL-DT-ST DVD-RAM GH40L ATA Device
    - ❖ **Audio:** High Definition Audio Device (Speakers)
  - **5 Intel Pentium 4 Computers**
    - ❖ **Operating System:** Windows XP
    - ❖ **CPU:** Intel Core 2 Duo E7400 @ 2.00GHz  
Wolfdale 45nm Technology
    - ❖ **RAM:** 248MB
    - ❖ **Graphics:** 5 HPL1908w (1280x1024@60Hz)
  - Room-length chalkboards
  - First Aid Kit Laboratory (For up to 25 people)
  - Infocus **Projector**
  - 3M 9050 Overhead **Projector**
  - HP LaserJet 5MP **Printer**
  - Available Software:
    - ❖ Microsoft Office 2010
    - ❖ MATLAB R2013b
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