

## ***Undergraduate Laboratory Renovation Initiative - alphabetical by item***

### ***(Equipment Only)***

<b><u>Item</u></b>	<b><u>Dept.</u></b>	<b><u>Lab Name</u></b>	<b><u>Cost</u></b>
(100kN) Universal Test System	IE	Advanced Manufacturing Laboratory	\$65,000
16TB Network Attached Storage (NAS) as specified by TTU IT, such as: Promise Technology VessRAID 1840i	CS	Computer Science Lab	\$6,899
3D Printer-Objet	IE	Advanced Manufacturing Laboratory	\$50,000
3-liter computer-controlled fermentation unit (Applikon)	ChemE	Undergraduate Teaching Labs	\$40,000
44 - Dell Computers	CEET	Engineering Graphics Lab	\$60,000
48 - Dell Computers	CEET	Constr. Eng. Computer Lab/Mech. Eng. Tech. Lab	\$70,000
AB bench stations for 1 hour labs, \$3000 each - Quantity 10	ECE	Undergraduate Laboratory	\$30,000
Accu II Milling 10" X 54" Machine	ME	Machine Shop	\$13,000
Acid Cabinet	CEE	Environmental	\$500
Acoustic-Doppler Velocimeter	CEE	Fluids	\$20,000
Activated Sludge Demonstration Unit	CEE	Environmental	\$10,000
Additional Lab Benches -Two (2)	CEE	Environmental	\$10,000
Anthropometry measurement kits (5 ea @ \$2K ea)	IE	Ergonomics	\$10,000
Apple iMac 27" (25 quantity)	CS	Computer Science Lab	\$49,975
Apple Mac Mini Server (2 quantity)	CS	Computer Science Lab	\$1,998
Arcam A1-Electron Beam System	IE	Advanced Manufacturing Laboratory	\$1,000,000
ASC Econoclave Autoclave	ME	Machine Shop	\$225,000
Autoclave (quantity 2)	CEE/ChemE	Environmental/Undergraduate Teaching Labs	\$15,000
Baileigh RDB-175 Tubing Bender w/ Round Pipe Die Package	ME	Machine Shop	\$10,503
Basic Hydraulics Bench	CEE	Fluids	\$10,000
Bench Depot Student Project Work Benches	ME	Machine Shop	\$10,398
BOD Incubator	CEE	Environmental	\$6,000
Centrifugal Pump Demonstration Unit	CEE	Fluids	\$13,600
Centrifuge	CEE	Environmental	\$8,000
Concrete Compression Testing Machines - Two (2)	CEE	Structures	\$19,000
Concrete Mixer	CEE	Structures	\$4,000
Craftsman 204 pc. Advanced Access Professional Tool Set	ME	Machine Shop	\$800
Data Acquisition System with NI Interface	CEE	Structures	\$15,000
Dedicated Process Control Equipment	ChemE	Undergraduate Teaching Labs	\$50,000
DELSYS EMG System Myomonitor IV (2 @ \$10k ea)	IE	Ergonomics	\$20,000
Differential Scanning Calorimeter (quantity 2)	IE/ChemE	Advanced Manufacturing Lab/Undergraduate Teaching Labs	\$60,000
Dimension 1200es Series 3D Printer	ME	Machine Shop	\$38,100
ECONOLINE Abrasive Blast Cabinet	ME	Machine Shop	\$5,900
EdgeCAM 2011 R2	ME	Machine Shop	\$5,500
Emergency Shower	CEE	Environmental	\$1,000
Faro Arm , Coordinate measuring system 3D laser scanner	ME	Machine Shop	\$74,019
FLEXGAGE - Rotary Flexible Link Module (w strain/gage)	IE	Dynamic Systems & Control Lab	\$12,113
Flow Mach 2b 1313b Waterjet	ME	Machine Shop	\$112,000
Flow Meter Demonstration	CEE	Fluids	\$8,000
Four point bending testing	ME	Mechanics and Materials	\$15,000

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Fourier Transform Infrared Spectrometer	ChemE	Undergraduate Teaching Labs	\$40,000
Gas Chromatograph (HP)	ChemE	Undergraduate Teaching Labs	\$60,000
Haas ST-40, 25.5" X 44", CNC Lathe	ME	Machine Shop	\$102,500
Haas VF-6, 64" X 32" X 30", 5-Axis, CNC Milling Machine	ME	Machine Shop	\$173,500
Hand tool sets for student use w/ tool box	ME	Machine Shop	\$1,643
Hand-held Laser Scanner (Reverse Engineering Applications)	IE	Advanced Manufacturing Laboratory	\$60,000
High Performance Liquid Chromatograph	CEE	Environmental	\$85,000
High Speed Cameras	CEE	Fluids	\$75,000
HPLC (Waters) for ChE 4232, 4363, 6364, 4385 and 3323	ChemE	Undergraduate Teaching Labs	\$60,000
iMac VESA mounting bracket (25 quantity)	CS	Computer Science Lab	\$975
Impact Testing Machine	ME	Mechanics and Materials	\$15,000
Industrial Rheometer ChE 4344/5344	ChemE	Undergraduate Teaching Labs	\$40,000
Integrated Type II Clarifier II	CEE	Environmental	\$8,000
Interface Unit	CEE	Fluids	\$8,200
Jackson Isometric strength testing system (2 @ \$5k ea)	IE	Ergonomics	\$10,000
Jaymar hand grip dynamometers (5 @ \$500 ea)	IE	Ergonomics	\$2,500
k4b2 portable oxygen analyzer (1 @ \$40k)	IE	Ergonomics	\$40,000
Large Capacity Materials Scale	CEE	Structures	\$1,300
MacRack Mini 1U Rack-mount Kit (1 quantity)	CS	Computer Science Lab	\$169
Makita LC1230 12" Metal Cutting Saw	ME	Machine Shop	\$495
Makita LXT218 Impact Driver/Hammer Drill Combo	ME	Machine Shop	\$420
Materials Curing Oven	CEE	Structures	\$8,500
Melt Indexer	ChemE	Undergraduate Teaching Labs	\$20,000
Metallographic Specimen Preparation Station	ME	Mechanics and Materials	\$25,000
Microbalance	ChemE	Undergraduate Teaching Labs	\$10,000
Micro-reactor	ChemE	Undergraduate Teaching Labs	\$35,000
Miller Spectrum Plasma Cutter	ME	Machine Shop	\$2,780
Milli-Q Water System	CEE	Environmental	\$10,000
Miniextruder ChE 4344/5344	ChemE	Undergraduate Teaching Labs	\$25,000
Motion Analysis digital 3 camera system (1 @ \$45k)	IE	Ergonomics	\$45,000
100 kip tension) - Two sets	CEE	Structures	\$500,000
N9320B RF Spectrum Analyzer, 9 kHz to 3 GHz	ECE	Undergraduate Laboratory	\$8,500
NDE equipment (Ultrasonic)	ME	Mechanics and Materials	\$25,000
Optical Microscope with Hot Stage	ChemE	Undergraduate Teaching Labs	\$20,000
Ovens	ME/CEE	Mechanics and Materials/Environmental	\$16,000
Particle Imagery Velocimeter	CEE	Fluids	\$150,000
Platen Press	ChemE	Undergraduate Teaching Labs	\$15,000
Precision TIG Welder and Associated Supplies	CEE	Structures	\$4,500
Pressure Surge in Pipe and Water Hammer Apparatus	CEE	Fluids	\$15,500
Quanser Wind Energy Testbed	IE	Dynamic Systems & Control Lab	\$16,396
Rapid Mix Flocculators -Four (4)	CEE	Environmental	\$12,000

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Replace all teaching test equipment in Room 229	CEE	Geotechnical	\$150,000
Riehle Testing Machine	CEE	Solids & Construction Materials	\$165,000
Rotatry Shaker	CEE	Environmental	\$8,000
ROTPEN - SE- Self-Eracting - Rotary Inverted Pendulum	IE	Dynamic Systems & Control Lab	\$8,700
Scanning Electron Microscope	ChemE	Undergraduate Teaching Labs	\$30,000
Series/Parallel Pump Demonstration Unit	CEE	Fluids	\$22,500
SLA/3D Printer Hybrid (ProJet 6000) - Stereolithography Apparatus (SLA)	IE	Advanced Manufacturing Laboratory	\$150,000
Small Material Weighing Scales -Three (3)	CEE	Structures	\$9,000
Spectrophotometer	ChemE	Undergraduate Teaching Labs	\$10,000
Spectrophotometers/Turbidity Meters - Four (4)	CEE	Environmental	\$12,000
Steel Reaction Frames	CEE	Structures	\$30,000
Summit 14" X 40" Engine Lathe (quantity 2)	ME	Machine Shop	\$13,464
Super Summit 24" X 60" Engine Lathe	ME	Machine Shop	\$50,789
Supplies	IE	Dynamic Systems & Control Lab	\$20,000
Table top scanning electron microscope	ME	Mechanics and Materials	\$60,000
Teaching Flume	CEE	Fluids	\$125,000
Tektronix MSO4104B	ECE	Undergraduate Laboratory	\$20,000
Tensile Tester ChE 4344/5344	ChemE	Undergraduate Teaching Labs	\$30,000
Tensile Testing Machine (Frame and Control unit)	ME	Mechanics and Materials	\$125,000
Thermogravimetric Analysis System	IE	Advanced Manufacturing Laboratory	\$60,000
Torsion testing	ME	Mechanics and Materials	\$15,000
Torsion Testing Machine	CEE	Solids & Construction Materials	\$150,000
Total Organic Carbon/Total Nitrogen Analyzer	CEE	Environmental	\$35,000
Triaxial Cell for GCTS Machine	CEE	Geotechnical	\$20,000
Two degrees of freedom Robot Modules	IE	Dynamic Systems & Control Lab	\$12,402
Vacuum Line for Filtration	CEE	Environmental	\$20,000
Ventilation Hood and Ducting	CEE	Environmental	\$17,000
Ventilator Hood for Sieve Shaker plus Venting Ducts	CEE	Structures	\$17,000
Vishay Strain Gage Data Collection System	CEE	Structures	\$60,000
Water quality multimeters with probes (DO/ORP/pH/T/TDS) - Eight (8)	CEE	Environmental	\$16,000
Wellsaw V20 Vertical Bandsaw	ME	Machine Shop	\$12,372
Westward 4YP27 Bench Vise	ME	Machine Shop	\$800
Wilton/Jet 20" Geared Floor Drill Press	ME	Machine Shop	\$4,299
Wilton/Jet Table Top Drilling Mill	ME	Machine Shop	\$2,999