Updated on 12/15/2017

2017 AEST Science Agricultural Mechanization

Pathway Specific Equipment Specifications

The purpose of this document is to provide school districts a standard purchasing procedures document to use when installing or upgrading computer labs. This document provides minimum specifications for equipment, software, furniture, and so forth. The district will be responsible for purchasing and maintaining all equipment, providing proper security, replacing missing equipment, and providing annual funds for the operation of the program. The district is also responsible for providing site preparation and electrical wiring. Schools that wish to purchase items different from those in this specification document will require written permission from the MDE.

Due to budget constraints, districts are encouraged to use existing hardware, software, and furniture and supplement with new items as needed. For existing items, the MDE will waive the requirement to purchase new items if the existing product meets the minimum specifications listed here. Some items in these specifications are listed as "optional," and it is at the school district's discretion whether these items should be purchased.

Important Notes Concerning this Document

• When configuring labs, please refer to both the General Equipment Specifications and Pathway Specific Equipment documents located on the Curriculum Download page. The General Equipment Specifications document contains a list of equipment needed to successfully implement all programs. The Pathway Specific document contains a list of equipment needed for a specific pathway. You will need to order the necessary equipment from both lists in order to implement your program.

• If labs are shared for multiple programs, be sure the minimum specifications are met for all programs.

• Any requests for Apple computers and/or hardware will be handled on a case-by-case basis by the Mississippi Department of Education. Apple should certify that all curricula, hardware, and software will run with items listed elsewhere in this document

- An existing server may be used with approval from local information technology (IT) personnel and the MDE.
- Existing networking equipment may be used if minimum specifications are met.

• Districts that install a wireless lab must gain permission from the MDE. Contact Christy Todd at ctodd@mde.k12.ms.us.

• Districts may choose to purchase switches with fewer than 48 ports, matching the number of ports to the size requirements of the labs. If using a wireless network, wired switch(es) would be shared among labs according to the district's needs.

• Alternate office productivity, keyboarding, creative suite, and/or CAD software may be used upon approval of the MDE. It is recommended that each district investigate existing software licenses to see if these programs may be added.

This equipment specification document contains preferred items as well as an alternate "thin client" option. If the thin client option is chosen, it is imperative that ample Internet access be available as online software is readily used with this option.

Computer Systems and Peripherals

Minimum specifications for lab hardware are based on the current Express Products List (EPL). The Mississippi Department of Information Technology Services (ITS) EPLs have stated dollar spending limits. For instance, for hardware EPLs, the limits are:

• For purchases over \$50,000, the customer MUST solicit quotations from two or more EPL sellers.

• For K-12 Schools, the dollar limitation is interpreted by ITS to be \$200,000 per project per school or campus per fiscal year, with a maximum dollar limitation of \$1,000,000 per school district per fiscal year for a project that spans multiple schools within the district.

• Projects costing in excess of \$200,000 are beyond the scope of this delegated process and subject to full ITS review and authorization. Authorization to exceed the EPL dollar limitation is described in the ITS Procurement Handbook under the EPL Planned Purchase process, article 013-080. http://dsitspe01.its.ms.gov/its/procman.nsf/TOC4?OpenView

Schools that choose to use the ITS EPLs will need to follow the ITS EPL instructions. Schools that choose to advertise for bids are encouraged to use the EPLs to compare prices and quality of equipment submitted on bids. Inside delivery, installation, and setup must take place by the specified target date. School districts may choose to install the equipment and software themselves or have the EPL vendors perform the installation. If a school prefers that the hardware installation be done by the EPL vendor, the EPL quote must include installation, setup, and training (to be scheduled by each local school district). If a school prefers that the software installation be done by the EPL vendor prefers that the software installation be done by the EPL vendor, the EPL quote must also include pre-loading the software described in Section B "Software," with the school providing the vendor media and proof of license. Vendors should assume that they will perform hardware and software installation unless otherwise indicated by the base system manufacturer. If a component is not available from the base system manufacturer, the vendor may propose a compatible third party component only if described in their written proposal. Systems and peripherals must be fully configured prior to shipment.

If a warranted defect is found in an item, that item must be repaired or replaced on-site within five working days of notification. A toll-free or local telephone number with a 24-hour response time must be provided for troubleshooting purposes. In the event that a component must be returned to the manufacturer for warranted repairs, a replacement will be provided by the vendor. Charges for shipping and handling of the component and its replacement must be borne by the vendor during the on-site warranty period. All warranty repairs made to the system during the warranty period must maintain full compatibility of the system with installed software. Any components found to be defective must be replaced with the same brand and model or its successor. If the school district chooses not to use the ITS EPLs, the Vendor Certification for IT Equipment and software Statement must be signed by the bidder and returned with the bid.Districts may exercise the option of having all items bid and installed in the specified configuration by a single vendor or multiple vendors. All upgrades are to be installed and operational by the Target Date.

NOTE: If labs are shared for multiple programs, be sure the minimum specifications are met for all programs. Schools may choose wired or wireless labs. They may also choose to use standard computers or the thin-client option.

Spec Item		Suggested
Number	Description	Quantity
1	 AC/DC Stick Welder Miller Thunderbolt XL or equivalent 225/150 Miniumum specifications: Rated CC AC output 250 amps, 30 volts, 30% duty cycle; DC output 250 amps, 30 volts, 30% duty cycle Output 40-250 A DC Input 220-240 volts AC single phase 60 Hz Full range continuous current control dial with current indicator AC, DC+ , and DC- polarity Three year parts and labor warranty Includes 20' 2/0 electrode cable and holder, and 20' 2/0 work cable and clamp 	4
2	 MIG Welder Millermatic 252 or 211 or equivalent Minimum Specifications: 6.5 power cord and MVP adapter plugs for 120V and 240V 10 ft. M-100 MIG gun and cable assembly 10 ft. work cable and clamp Argon and AR/CO2 mix regulator/flow gauge with hose Contact tips for .030 in wire Spool of .030 in solid wire 	3
3	 Programmable Plasma Cutter and Table Baileigh Plasma Cutting system PT CUT 80 and Table PT-22 or equivalent Minimum specifications: 80 amp. ½" Production Cut Master A80 Fully assembled 2 x 2 Plasma table 110 v power 2 torch holders Design software package 	1
4	Iron Worker Scotchman 50 Ton 50514-EC or equivalent Minimum specifications: • 5 stations • Universal open tooling station • Dedicated Coper/notcher station • 14 inch capacity bar shear • Punching station: 1-1/4 inch hole through ½ inch steel plate • Angle shear 4x4x3/8	1

NON-CAPITALIZED ITEMS

- 1. C-clamps (1 set)
 - 4 pc set includes maximum opening 3, 4, 5, and 6" ductile iron clamps
- 2. Wire Brush (3)
 - Curved wood handle.
 - $5\frac{1}{2}$ " brush part with 1 3/16" trim length in 3 x 19 rows.
 - 14" x 7/8" block size.
- 3. Battery Charger
 - Starter/charger delivers up to 80 amps cranking power.
 - 30 amp rapid charge, 12 amp fast charge, and 2 amp slow charge rates.
 - Charges 6 or 12 V batteries and serves as a battery and alternator tester.
- 4. Punch and Chisel, Combination Set (1 set)
 - Fourteen-piece punch and chisel set includes: 4 cold chisels, 6 pin punches, 1 prick punch, 1 center punch, and 2 alignment tools
- 5. Wire Stripping, Crimping, and Cutting Tool (2)
- 6. Gauge, Tire
 - 20-120 psi scale.
- 7. Grease, Gun
 - Hand held grease gun using standard 14 oz. grease cartridges.
 - Flexible hose
- 8. Hammers, Ball Peen (1 set)
 - 16 and 24 oz. ball peen hammers
- 9. Mallets, Soft Face (1 set)
 - Black rubber head and hickory handle.
 - 13 and 30 oz.
- 10. Dial Utility Caliper
 - Made of hardened stainless steel.
 - Inside and outside depth and step capabilities.
 - 0 6" w/0.001 graduation.
- 11. Dial Test Indicator
 - 2 ¹/₄" dial 1 inch range with .001" graduations
- 12. Compression Test Kit
 - Shock resistant gauge reading 0-300 psi.
 - Assorted adapters for automotive and small engine applications.
- 13. Gauge, Sparkplug (2)
 - Includes blade holder, electrode bender, and six bent wire gauges in sizes .044", .045", .050", .054", .060", and .080".
- 14. Gauge, Thickness, .0015 .035" (2)
- 25 leaf feeler gauge
- 15. Micrometer, Inside, (1 set)
 - $1\frac{1}{2}$ " to 8", gradations of .001", and case.
- 16. Micrometer, Outside, (1 set)
- 17. 4-piece micrometer set (0-1", 1-2", 2-3", and 3-4")
- 1", 2", and 3" standards with case.
- 18. Multimeter, Digital
 - Basic functions with automatic ranging display and AC/DC voltage current protected up to 600V CATIII
 - Measures true RMS voltage and current, resistance, and temperature with a basic 0.5% accuracy.
 - Includes test leads, thermocouple, protective holster, and detailed owner's manual.
- 19. Pliers, Diagonal Cutting, 6" (2)
- 20. Pliers, Lineman, 6" (2)
- 21. Pliers, Needlenose, 6" (2)
- 22. Pliers, Tongue and Groove, 7" (2)

- 23. Shield, Face w/Headgear (5)
- 24. Tool Kit, Small Engine (1 kit)
 - Ignition tester, carburetor screwdrivers (2), valve spring compressor, flywheel pullers (3), piston ring compressors (2), plug gauge valve guides (2), flywheel holder, tang bender, starter clutch wrench, brake adjustment gauge, lubricant valve, valve lapper w/suction cup, tachometer, valve lapping compound.
- 25. Tool Set, SAE and Metric (1 set)
 - 348 piece mechanics tool set SAE and metric combination wrenches; 1/4", 3/8", and ½" standard and deep wall sockets with ratchet and extensions; ignition wrench sets; Torx, slotted and Phillips screwdrivers; and SAE and metric hex key set/Lifetime warranty on all tools
- 26. Mechanics Tool Chest with organizers
 - 6 drawer roll-away heavy duty chest with ball bearing glides and swivel casters with toe brakes
 - 35 in. high x 26 $\frac{1}{2}$ in. wide x 18 in. deep
 - Includes 6 high impact plastic socket storage trays one each for ¹/₄" SAE and metric sockets, 3/8" SAE and metric sockets, and ¹/₂" SAE and metric sockets.
- 27. Wrench, Torque (3/8" drive)
- 28. Micrometer-type torque wrench measuring from 25 to 250 in. lbs.
- 29. Wrench, Torque (1/2" drive)
- 30. Micrometer-type torque wrench measuring from 20 to 150 ft. lbs.
- 31. Helmet, Arc Welder (6)
 - 2" x 4 $\frac{1}{4}$ " shade 10, fixed front lens.
- 32. Gloves, Welding (8 pair)
 - Leather with sock lining
- 33. Hammer, Chipping (4)
- 34. Goggles, Oxyacetylene Welding/Cutting (4)
 - One piece goggle with 50 mm poly lenses shade
- 35. Goggles, Clear (4)
- 36. Work Bench, Open with maple top (6)
 - (60" L x 30" W x 30" H) †
 - Metal frame legs and 1 ³/₄" thick kiln dried hard maple wood top.
 - [†] Local districts should avoid purchase of this item if existing equipment is suitable and in acceptable condition.
- 37. Work Bench, Open with metal top (60" L x 30" W x 34" H) (6)
 - Metal frame legs and top.
 - Movable with casters
 - † Local districts should avoid purchase of this item if existing equipment
 - is suitable and in acceptable condition.
- 38. Horizontal Engine, 3.5 HP (2)
- 39. Oxyacetylene welding and cutting torch with cart (1 set)
 - Built-in reverse flow check valves and flashback arresters
 - 2-Stage oxygen and acetylene regulators with 2 1/2" color coded gauges and gauge guards, stainless steel diaphragms, and self-reseating relief valve
 - Torch handle with one cutting attachment and tip, three welding tips (sizes 1, 3, and 5), and one heating tip
 - 25' grade "T" twin hose
 - · Goggles, multiwrench, and tip cleaner
 - Welds up to 1/2" and cuts up to 3/4"
 - Heavy duty two wheel cart to hold standard size oxygen and acetylene cylinders.
 - 43" H x 23" W x 15" D, 16 gauge, 1" tubular steel.